Abstracts

Design of a Full Waveguide Bandwidth High-Power Isolator

B.J. Duncan and B. Vafiades. "Design of a Full Waveguide Bandwidth High-Power Isolator." 1958 Transactions on Microwave Theory and Techniques 6.4 (Oct. 1958 [T-MTT]): 411-414.

An analysis of the microwave fields in rectangular waveguide indicates that circular polarization of the H-vector components exists at two planes only and the location of these planes is frequency dependent. Also, an examination of Kittel's theory reveals that resonance in ferrites can be made to occur at different frequencies for a constant value of dc magnetic biasing field provided the ferrites are characterized by different values of saturation magnetization. These two effects have been used concurrently in the design of an X-band waveguide isolator for operation over a 45 per cent bandwidth, and at high power levels. The theory underlying the design of this isolator is presented. Included is a treatment of the parameters which affect the isolator design. Finally, an operative isolator is described and its experimental characteristics are reported.

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