Abstracts

Magnetostatic-Wave Propagation in a Finite YIG-Loaded Rectangular Waveguide

M. Radmanesh, C.M. Chu and G.I. Haddad. "Magnetostatic-Wave Propagation in a Finite YIG-Loaded Rectangular Waveguide." 1986 MTT-S International Microwave Symposium Digest 86.1 (1986 [MWSYM]): 469-472.

The propagation of magnetostatic waves (MSW) in a waveguide partially loaded with a low-loss YIG slab is investigated theoretically. Using the integral equation method, the dispersion relation is found to be an infinitely large determinant equal to zero. Proper truncation of this determinant and numerical analysis to find its roots are carried out in this work. It is noticed that there exists a trade off between the time delay and the device bandwidth and maximization of one property leads to a poor value in the other. Thus some design compromises should be made. It is also observed that the frequency range of operation of the device can be adjusted by an external magnetic bias field. This flexibility in tuning the device to operate in any frequency range adds an extra dimension of flexibility to the operation and also design of these devices.

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