Abstracts

Magnetostatic Waves in a Normally Magnetized Waveguide Structure (Dec. 1987 [T-MTT])

M. Radmanesh, C.-M. Chu and G.I. Haddad. "Magnetostatic Waves in a Normally Magnetized Waveguide Structure (Dec. 1987 [T-MTT])." 1987 Transactions on Microwave Theory and Techniques 35.12 (Dec. 1987 [T-MTT] (1987 Symposium Issue)): 1226-1230.

In this paper, the propagation of magnetostatic waves (MSW's) in a normally magnetized low-loss ferrite slab (such as a yttrium iron garnet (YIG) slab) placed inside a waveguide is investigated theoretically. This case has never been studied before, and is analyzed here for the first time. A dispersion relation for the modes of propagation in terms of an infinite determinant can be obtained. With proper truncation procedures, sample numerical calculations for dispersion relations and group time delay per unit length were obtained and are presented herein. The general formulation in this paper contains all the information provided by the degenerate cases previously published. One special case of interest, i.e., that of a multilayer planar structure, is derived from our general formulation. The derivations of other special cases follow the same procedure.

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