Abstracts

Magnetostatic Volume Modes of Ferrite Thin Films with Magnetization Inhomogeneities through the Film Thickness

N.E. Buris and D.D. Stancil. "Magnetostatic Volume Modes of Ferrite Thin Films with Magnetization Inhomogeneities through the Film Thickness." 1985 Transactions on Microwave Theory and Techniques 33.10 (Oct. 1985 [T-MTT] (Special Issue on Numerical Methods)): 1089-1096.

A variational method recently used to analyze magnetostatic surface waves in films with arbitrary magnetization inhomogeneities through the film thickness is extended and applied to volume-wave modes in similar structures. Methods for calculating dispersion relations, delay characteristics, and magnetostatic potential functions for both forward and backward volume waves are discussed. Also, concepts pertaining to homogeneous films such as mode bandwidth and dimensional scaling effects are extended to the inhomogeneous case. Detailed consideration is given to a class of modes whose zero-wavenumber cutoff frequencies are associated with the minimum magnetization of the film. Calculations for linear and ion-implanted films are presented as numerical examples. Forward volume waves show greater sensitivity to the inhomogeneities than do backward volume waves for the cases considered.

❑ Return to main document.