Abstracts

A Magnetically Switchable Ferrite Radome for Printed Antennas

D.M. Pozar. "A Magnetically Switchable Ferrite Radome for Printed Antennas." 1993 Microwave and Guided Wave Letters 3.3 (Mar. 1993 [MGWL]): 67-69.

A ferrite superstrata or radome layer can be used to control the radiation, reception, and scattering from a printed antenna or array by applying a dc magnetic bias field in the plane, of the ferrite, orthogonal to the RF magnetic field. By properly choosing the bias field, the effective permeability of an extraordinary plane wave propagation in the ferrite region can be made to be zero or negative over a certain frequency range, resulting in an evanescent wave behavior in the ferrite layer, and a large attenuation of the wave transmitted through the layer. Similarly, the radar cross section of the antenna will be reduced by twice this attenuation factor. A simple model capable of predicting the gross behavior of the ferrite radome layer is presented, and experimental data is shown to validate the concept.

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