Abstracts

Magnetic Tuning of a Microstrip Patch Antenna Fabricated on a Ferrite Film

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Patch antennas are widely used because they are lightweight, conformal and easy to manufacture. Their principal disadvantage--narrow instantaneous bandwidth--has led to the investigation of the incorporation of ferrites with patches to obtain magnetic tuning of the radiation frequency of the patch. A square, single-feed patch, fabricated on a ferrite film, that produced orthogonally polarized, well-formed radiation patterns is described. The application of a small in-plane magnetic field tuned the frequency, and hence phase, of one polarization only. Prior work on patch antennas fabricated on bulk ferrite substrates demonstrated magnetic tuning, but only linear polarization was obtained. The present work indicates that 1) thin ferrite films, which are monolithically integrable, may be useful for a magnetically-tunable antenna, and 2) the radiation polarization of the patch can be varied by the application of a small in-plane magnetic bias field.

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