Abstracts

Nonmechanical Beam Steering by Scattering from Ferrites

M.S. Wheeler. "Nonmechanical Beam Steering by Scattering from Ferrites." 1958 Transactions on Microwave Theory and Techniques 6.1 (Jan. 1958 [T-MTT]): 38-42.

A small aperture radiating circularly polarized energy is loaded with a spherical ferrite to produce an electronic beam directing system. The ferrite is immersed in a static magnetic field which is in general at an oblique angle with the unreflected direction of radiation. It is shown that radiation is principally in the direction of the magnetic field when the polarization is in the negative sense. From symmetry this allows beam deflection with two degrees of freedom. To consider an application for such a device, it is proposed that this deflection system be used in conical scan. A mechanization is shown, which solves the problem in principle, but it is not competitive with present mechanical scanners from the point of view of side lobes, etc.

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