Abstracts

Radiation from a Rectangular Waveguide Filled with Ferrite

G. Tyras and G. Held. "Radiation from a Rectangular Waveguide Filled with Ferrite." 1958 Transactions on Microwave Theory and Techniques 6.3 (Jul. 1958 [T-MTT]): 268-277.

This paper presents an approximate analytical solution to the problem of radiation from a ferrite-filled rectangular waveguide. The field distribution at the mouth of the guide is assumed to be unaffected by the termination of the guide. The vector Huygens' principle is applied to find the far-zone radiation field from the determined aperture field. The solution to the problem is found in this manner for the cases of longitudinal and transverse magnetization of the ferrite. The transverse magnetization case is supplemented with a discussion of a specfic numerical example which includes plots of the aperture field distribution and the phase angle as well as plots of the far-zone radiation field. The experimentally known phenomenon of the effect of the applied magnetic field upon the shift of the main lobe is demonstrated and verified analytically.

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