Abstracts

Propagation of the Quasi-TEM Mode in Ferrite-Filled Coaxial Line

M.E. Brodwin and D.A. Miller. "Propagation of the Quasi-TEM Mode in Ferrite-Filled Coaxial Line." 1964 Transactions on Microwave Theory and Techniques 12.5 (Sep. 1964 [T-MTT]): 496-503.

The Suhl and Walker approximation for the propagation constant of the quasi-TEM mode in ferrite-filled parallel plane waveguide has been applied to the ferrite-filled coaxial line. The approximation is compared to exact solutions for a coaxial line filled with a lossless ferrite with close agreement. The propagation constant of the quasi-TEM mode is determined by measuring the complex reflection coefficient of a plane ferrite-air interface. The alpha and (beta are compared to the Suhl and Walker approximation with losses, and qualitative agreement is found. In order to relate the measured values to the propagation constants, the boundary value problem of the reflection from a plane ferrite-air interface is investigated. Expressions are derived which relate the real and imaginary parts of the propagation constant in the ferrite to an approximation to the complex reflection coefficient of the TEM mode in the empty line.

❑ Return to main document.