Abstracts

Mode Theory of Waveguide Filled with Warm Uniaxial Plasma

H.-S. Tuan. "Mode Theory of Waveguide Filled with Warm Uniaxial Plasma." 1969 Transactions on Microwave Theory and Techniques 17.3 (Mar. 1969 [T-MTT]): 134-137.

Characteristics of wave propagation in a guide filled with uniaxial anisotropic warm plasma are investigated. Basic equations of the plasma are derived. The validity of the plasma model and its physical significance are discussed. It has been found that TE modes are not affected by the presence of plasma. However, TM modes do have significant changes. Under the condition specified, each TM mode splits into two submodes. One has a low-frequency cutoff and the other propagates for all frequencies. The nature of power transfer in these modes is also investigated. A comparison of the effects as well as the physical significance of the changes due to cold and warm uniaxial plasma models are discussed.

❑ Return to main document.