Abstracts

Characteristics of Millimeter-Wave Radiation in a Corrugated Ferrite Slab Structure

S. Erkin, N.S. Chang, H. Maheri and M. Tsutsumi. "Characteristics of Millimeter-Wave Radiation in a Corrugated Ferrite Slab Structure." 1988 Transactions on Microwave Theory and Techniques 36.3 (Mar. 1988 [T-MTT]): 568-575.

The characteristics of millimeter-wave radiation in a corrugated ferrite slab supported by a grounded dielectric slab are investigated both theoretically and experimentally. Theoretical analysis is performed by the perturbation theory combined with multiple space scales for the transverse electric mode. A pair of amplitude transport equations are derived, and the characteristics of the leaky wave are explained in terms of the radiation angle and the radiation efficiency. Experiments are carried out by using the layered structure composed of a corrugated polycrystalline yttrium iron garnet slab and a Teflon slab in the frequency range from 40 to 50 GHz. The experimental results are compared with the theory.

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