Abstracts

Nonuniform Layer Model of a Millimeter-Wave Phase Shifter (Comments)

K. Ogusu and I. Tanaka. "Nonuniform Layer Model of a Millimeter-Wave Phase Shifter (Comments)." 1986 Transactions on Microwave Theory and Techniques 34.11 (Nov. 1986 [T-MTT]): 1226-1227.

In the above paper, Butler et al. have investigated theoretically the propagation characteristics of the dielectric waveguide with plasma layer created by an exponentially absorbed optical beam. They have solved numerically the complex wave equation by using a multipoint boundary-value differential equation solver. On the other hand, we have already treated the same nonuniform layer model by using a multilayer staircase method [2]. In this approach, the actual permittivity profile of the waveguide is approximated by the finite number of steps. The wave equation is solved for each step and the complex propagation constant is determined so as to satisfy the boundary conditions at all interfaces. The mathematical formulation is very simple and an accurate solution can be obtained by increasing the number of steps M. The details of the method can be found in [3] and [4].

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