Abstracts

Electromagnetic Wave Propagation in a Rectangular Waveguide with Sinusoidally Varying Width

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Wave propagation along a rectangular waveguide with slowly varying width has been investigated with the help of field theory and approximate circuit theory. In the field theory approach, two different methods of analysis have been attempted. Many properties of the modulated periodic structure, e.g., the frequency dependence of the propagation constant group and phase velocities and the electric field axial variation for the fundamental space harmonic and its filter-like property have been investigated. The magnetic field lines on the H-plane for a typical case exhibit an expected configuration. Experimental results show close agreement with analysis. It is concluded that this structure supports the fast fundamental space harmonic.

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