Abstracts

Intermodal Coupling at the Junction Between a Straight and a Continuously Curved Waveguide of Rectangular Cross Section

In a microwave system for guiding electromagnetic waves one often encounters waveguide bends formed by the interconnection of straight and continuously curved waveguides of rectangular cross section. Precise numerical computations and extensive analytical investigations of the angular propagation constants for the various electromagnetic modes which may exist in the curved section alone have been investigated by many researchers, in particular by Cochran and Pecina (1966). In contradistinction to the above, the propagation constants and modal fields which may exist in the straight sections alone are trivial. An understanding of the propagation of electromagnetic waves through these waveguide bends requires, therefore, a complete comprehension of the intermodal coupling that takes place at the various junctions and discontinuities. This talk will discuss in detail the coupling that occurs at a junction between a straight and a continuously curved waveguide of rectangular cross section.