Abstracts

Analysis of waveguide E-plane discontinuities and components based on planar-circuit approach

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This paper presents a new analytical technique for analyzing and designing various waveguide E-plane discontinuities and components based on the E-plane planar-circuit approach. This procedure is straightforward and accessible because of its formalism which is founded on circuit theory utilizing a "magnetic" mode impedance matrix. Moreover, since only a reasonably short computation time is required for the calculation of relatively complicated structures such as an E-plane corner and T-junction with one or more circular posts for broadband matching in their junction areas, we can readily optimize the circuit configuration of such waveguide components by a personal computer, for instance.

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