Abstracts

Field Theory Analysis of Circular Ridge Waveguides with Partial Dielectric Filling

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The circular ridge waveguide (CRW) is a very useful structure for tuningless dual mode filters and septum polarizers. In this paper we present a rigorous analysis of the mode spectrum of CRW which is based on the cylindrical method of lines (CMOL). The advantage of the CMOL is that only one space variable need to be discretized and that spurious modes as well as relative convergence phenomena are not encountered. Partial dielectric filling as well as structures with mixed cylindrical/ rectangular boundaries can be easily included in the analysis. Results will be given for homogeneously filled CRW and for rectangular waveguides with cylindrical dielectric blocks.

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