

Very Wideband Operation of Twin-Layer Inset Dielectric Guide

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Inset Dielectric Guide has been proposed as a transmission line for millimeter wave circuits and antennas. However, little has been determined concerning the guide parameters which control the bandwidth of the guide or the achievable bandwidth limits. In order to investigate these parameters we have analyzed the IDG structure in the case where the dielectric filling may be a multilayer structure. As a result, we have found that while IDG with a single filling can have a bandwidth exceeding that of rectangular metal waveguide, the use of just two dielectric layers can give bandwidths exceeding those typical of double ridge waveguide.

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