

Coupling between dissimilar rectangular dielectric waveguides

H. Cory, O. Skorka and M. Sharkansky

Department of Electrical Engineering
Technion—Israel Institute of Technology
Technion City, Haifa 32000, Israel

Abstract

The coupling between two identically excited, dissimilar rectangular dielectric waveguides, whose axes are parallel, is studied as a function of frequency and of the geometrical and the electrical properties of the structure. It is found that, for a given permittivity ratio, the power transfer between the guides is maximal, but not complete, at some particular frequency. It is also found that, for a given frequency, the power transfer between the guides is complete for the appropriate combination of permittivity and size of the guides which achieves the same propagation coefficient in both.