

In this work, coupling of two identical channel waveguides separated by an air gap is analyzed. The coupled structure exhibits a strong refractive index contrast in both the transverse and longitudinal dimensions, which necessitates the use of a full-vectorial model. The 3D full vectorial MoL-BPM numerical method is utilized for this purpose. The effect of the transverse and longitudinal displacements on the modal reflectivity and modal transmissivity of the fundamental *TE-like* and *TM-like* modes is reported. Numerical results are presented for both the full-vectorial model as well as for the approximate semi-vectorial model. Significant difference between the predictions of these two models is seen.