

**Coupling between Arbitrarily Rotated Dielectric Waveguides**

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**ABSTRACT**

The coupling between two identical square dielectric waveguides with parallel axes has been studied for various configurations, in which one of the guides was arbitrarily rotated with respect to the other. In one case, the first guide was kept fixed while the second guide was rotated from  $0^\circ$  to  $180^\circ$ . It was found that the coupling coefficient was maximal when the inclination angle was  $0^\circ$  or  $180^\circ$ , and vanished when it was  $90^\circ$ . In another case, one corner of the first guide faced one corner of the second guide. It was found that the coupling coefficient was less than half the maximal value obtained for the previous configuration. This study has a practical aspect: it proposes a possible way to select an appropriate coupling in order to satisfy a given engineering design.