

Abstracts

Analysis of Waveguides with Dielectric Inserts

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The method, which has been introduced in [1] for the analysis of waveguides with metal inserts, is extended to the analysis of waveguides with dielectric inserts. These include shielded dielectric guides, e.g. dielectric image guide and dielectric rod guide, and all shielded planar guiding structures. The method is based on applying the equivalence principle followed by field expansions in terms of the normal modes of the corresponding waveguide without the dielectric insert. The validity of the method is checked by analyzing a simple dielectric-slab-loaded rectangular waveguide. The method is then applied to the analysis of more implicated structures, e.g. shielded dielectric image guide and shielded dielectric rod guide.

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