Abstracts

Bandwidth Optimization by Dielectric Loading

The known theory of dielectrically loaded rectangular waveguides is combined with appropriate optimization procedures to yield optimal bandwidth design. The minimal acceptable power handling capacity and/or the maximal allowed losses are used as contraints. Alternatively, power handling capacity or losses may be considered as the desired optimization targets. The numerical determination of the relevant cutoff frequencies is carried out by the efficient mode-matching technique as well as the more generally applicable moment solution. Alternative search algorithms are used and compared. Results of the optimization process are given a simple physical interpretation.

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