Abstracts

An approach to analysis of waveguide arrays with shaped dielectric inserts and protrusions

M. Davidovitz. "An approach to analysis of waveguide arrays with shaped dielectric inserts and protrusions." 2001 Transactions on Microwave Theory and Techniques 49.2 (Feb. 2001 [T-MTT]): 355-361.

The classical moment method solution of the waveguide-array problem is extended to allow for generally shaped dielectric matching inserts in the waveguide-to-free-space transition region. The aperture electric field is represented in terms of waveguide modes. To account for the presence of the matching inserts, the aperture fields are numerically propagated through the dielectric regions. Novel matching configurations, which extend the scanning range of waveguide elements or can be used to shape the element pattern in limited-scan applications, are proposed and analyzed.

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