Abstracts

Coupling parameters of a concentric multi-element waveguide array

The coupling between the rectangular waveguide applicators of a multi-element annular array looking into a layered lossy cylinder of circular cross section is analyzed theoretically. To this end, a system of coupled integral equations is derived in terms of the electric fields developed on the waveguide apertures, which is solved by expanding the unknown electric field on each aperture into waveguide normal modes and by applying a Galerkin's procedure. The self reflection coefficient and the mutual coupling coefficients are then determined and numerical results for a thirty (30) element waveguide array are computed and presented.

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