Abstracts

Electromagnetic Scattering from a Coaxial Dielectric Circular Cylinder Loading a Semicircular Gap in a Ground Plane

H.A. Ragheb. "Electromagnetic Scattering from a Coaxial Dielectric Circular Cylinder Loading a Semicircular Gap in a Ground Plane." 1995 Transactions on Microwave Theory and Techniques 43.6 (Jun. 1995 [T-MTT]): 1303-1309.

An exact dual series solution of a plane wave incident on a coaxial dielectric circular cylinder imbedded in a semicircular gap of a ground plane is presented. Both TM and TE cases are considered here. The scattered field is represented in terms of an infinite series of cylindrical waves with unknown coefficients. By applying the boundary conditions and employing the partial orthogonality of the trigonometric functions the scattering coefficients are obtained. The resulting infinite series is then truncated to a finite number of terms to produce numerical results. For the sake of comparison with the published data some special cases are introduced first. The comparisons showed excellent agreement in all cases.

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