Abstracts

TM scattering from hollow and dielectric-filled semielliptic channels with arbitrary eccentricity in a perfectly conducting plane

The behavior of TM wave scattering from hollow and dielectric-filled semielliptic channels in a perfectly conducting substrate is investigated. The scattered field is represented in terms of an infinite series of Mathieu functions with unknown coefficients. By applying the separation of variables and employing the partial orthogonality of the first-kind angular Mathieu functions, the unknown coefficients are obtained. Numerical results are given for the scattered-field patterns by the channels with different eccentricities and permittivities.

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