Abstracts

Electromagnetic Scattering from an Infinite Circular Metallic Cylinder Coated by an Elliptic Dielectric One

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In this paper the scattering from an infinite circular, perfectly conducting cylinder, coated by an elliptic dielectric one, is considered. The electromagnetic field is expressed in terms of both circular and elliptical cylindrical wave functions, which are connected with one another by well-known expansion formulas. In the special case of small h = ka/2 (a is the interfocal distance of the elliptic dielectric and k its wavenumber), exact, closed-form expressions of the form S(h) = S(0)[1 + gh² + O(h/sub 4/)] are obtained for the scattered field and the various scattering cross sections of the problem. Both polarizations are considered for normal incidence. Graphical results for various values of the parameters are given.

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