Abstracts

Electrostatic Potential through a Circular Aperture in a Thick Conducting Plane (Short Papers)

J.H. Lee and H.J. Eom. "Electrostatic Potential through a Circular Aperture in a Thick Conducting Plane (Short Papers)." 1996 Transactions on Microwave Theory and Techniques 44.2 (Feb. 1996 [T-MTT]): 341-343.

The electrostatic potential through a circular aperture in a thick conducting plane is examined. The Hankel transform is applied to express the scattered potential in the spectral domain and the boundary conditions are enforced to obtain simultaneous equations for the transmitted potential inside the thick conducting plane. The simultaneous equations are solved to represent the transmitted and scattered potentials in series forms. Numerical computations are performed to illustrate the behavior of polarizability in terms of the aperture size. The numerical comparisons to other available data show excellent agreement. The presented series solution is fast convergent so that it is very efficient for numerical computation.

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