

WAVE PROPAGATION IN A THREE-LAYER MEDIA¹, I. Kim, M. Denis and C. Thompson*, Center for Advanced Computation and Telecommunications, University of Massachusetts Lowell, Lowell MA 01854, charles_thompson@uml.edu

In this work the problem of electromagnetic wave propagation in a three-layer medium is examined. The medium under investigated is comprised of three parallel planar layers. Two of the layers are of semi-infinite extent joined by a central layer is situated between them. The medium is excited by a point dipole source located in the central layer and is directed normal to the medium interface. The reflected wave created by a normally directed dipole situated above a two medium interface can be modeled using single image source as shown first by Sommerfeld and more recently by Lindell. In contrast, the three-layer case requires an infinite number of images. It will be shown the source strength can be determined using the Laplace transform of the planar reflection coefficient of each medium. In doing so a recursive algorithm for the image source strength is developed.

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