Abstracts

Composite Hole Conditions on Complex Permittivity Measurements Using Microwave Cavity Perturbation Techniques (Short Papers)

This paper examines the edge effects of introducing a dielectric test cylinder with a test material into a cavity via a metallic support tube extending outside the cavity. A first-order perturbation theory is used for this metallic hole containing two different concentric dielectric materials. The Galerkin method is used to determine the amplitudes of numerous evanescent modes which exist in such composite hole geometries. Comparisons are made with the effects produced by a simple hole in which a single dielectric is postulated inside the metallic support tribe. The effects of the composite hole on the measurement of the dielectric properties of materials are given.