Abstracts

Microwave Shielding Effectiveness of EC-Coated Dielectric Slabs (Short Papers)

C.A. Klein. "Microwave Shielding Effectiveness of EC-Coated Dielectric Slabs (Short Papers)." 1990 Transactions on Microwave Theory and Techniques 38.3 (Mar. 1990 [T-MTT]): 321-324.

The purpose of this paper is to derive correct formulas for the microwave shielding effectiveness (SE) of a thin metallic layer deposited on top of a dielectric slab. For coatings much thinner than the skin depth, the following holds (a) In a half-wave geometry, SE is a function of the sheet resistance only, SE (in dB) = 20 x log (1+ 188.5/R/sub s/) if R/sub s/, is in ohms per square; (b) in a quarter-wave geometry, SE (in dB) = 20 x log [(1+epsilon/sub r/)/(2radic epsilon/sub r/) + 188.5/(radic epsilon/sub r/R/sub s/)], where epsilon/sub r/ refers to the dielectric constant of the substrate. These formulas provide upper and lower limits for the effective shielding performance of an electroconductively coated dielectric slab.

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