Abstracts

Electromagnetic propagation into reinforced-concrete walls (Mar. 2000 [T-MTT])

E. Richalot, M. Bonilla, Man-Fai Wong, V. Fouad-Hanna, H. Baudrand and J. Wiart. "Electromagnetic propagation into reinforced-concrete walls." 2000 Transactions on Microwave Theory and Techniques 48.3 (Mar. 2000 [T-MTT]): 357-366.

A rigorous method for analyzing building construction materials, using finite-element techniques and an expansion of fields in Floquet's modes, is presenteded in this paper. It allows us to precisely study the electromagnetic properties of buildings walls in terms of transmission and reflection characteristics, which can be useful in the design of wireless communication systems. First, we present the influence of the wall's parameters, namely, its thickness, the square side length, and the steel diameter of a concrete grid. The influence of the angle of arrival of the incident wave and the effect of considering the diffused field on the electromagnetic properties are then presented.

❑ Return to main document.