Abstracts

Diffraction of Electromagnetic Waves by a Conducting Screen Perforated Periodically with Circular Holes

C.-C. Chen. "Diffraction of Electromagnetic Waves by a Conducting Screen Perforated Periodically with Circular Holes." 1971 Transactions on Microwave Theory and Techniques 19.5 (May 1971 [T-MTT]): 475-481.

The reflection and transmission of a plane wave incident on a thin perfectly conducting screen perforated periodically with circular holes are considered. The spacings between holes may be comparable to or less than the wavelength. The metal screen is assumed to be either backed by a flat dielectric sheet, or sandwiched between two or more dielectric sheets that are used to match the susceptsnce of the screen. The techniques of transmission line analysis and the method of moments are employed to obtain a solution for this general class of boundary-value problems. Numerical results for several cases of interest in both X and Ku bands were obtained and shown to be in good agreement with experimental measurements.

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