# Abstracts

## Electromagnetic Diffraction by a Planar Array of Circular Disks (1962 [MWSYM])

*W.H. Eggimann and R.E. Collin. "Electromagnetic Diffraction by a Planar Array of Circular Disks (1962 [MWSYM])." 1962 PGMTT National Symposium Program and Digest 62.1 (1962 [MWSYM]): 32-34.*

In a recent paper the electromagnetic diffraction by a perfectly conducting circular disk was calculated. The induced surface current density was obtained as a power series in (ka), with k =2pi/lambda=wave number and a = disk radius. These results are now used to calculate the diffraction by a planar rectangular array of disks. Problems of this sort are important in the studies of artificial dielectrics where the molecular dipoles of real dielectrics are replaced by conductors distributed regularly or at random in a supporting medium. For many cases, good approximate solutions have been found usually for conductors with dimensions very small compared to the wavelength or for some very simple geometrical configurations. The case of an array of disks has been the object of early investigations. In a first approximation, the disks are replaced by the induced electric and magnetic dipole moments which Bethe obtained during his studies of the diffraction by small holes. Later, the so-called static interaction, where phase differences between the oscillating dipoles are neglected, was taken into account.

❑ Return to main document.