# Abstracts

## A Finite Difference, First-Order Perturbation Method for Attenuation in Arbitrarily Shaped Waveguides

*M.J. Beaubien and A. Wexler. "A Finite Difference, First-Order Perturbation Method for Attenuation in Arbitrarily Shaped Waveguides." 1970 G-MTT International Microwave Symposium Digest of Technical Papers 70.1 (1970 [MWSYM]): 156-159.*

The simplest and most frequently used method employed in the calculation of waveguide wall losses proceeds as follows: (1) solve the electromagnetic field under the assumption that the walls are perfectly conducting; (2) calculate the wall currents through knowledge of the magnetic field tangential to the wall; (3) square the current, at each point on the conductor surface, and multiply by the equivalent resistance due to skin effect R/sub s/ = /spl radic/ omega/μ/sub o/ / 2sigma; and (4) integrate over the entire surface to obtain the total power loss. Note that the initial assumption of perfectly conducting walls excludes six-component hybrid fields from consideration --- which, in fact, must exist.

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