Abstracts

Experiments with the Forbidden Regions of Open Periodic Structures: Application to Absorptive Filters

C.K. Birdsall and R.M. White. "Experiments with the Forbidden Regions of Open Periodic Structures: Application to Absorptive Filters." 1964 Transactions on Microwave Theory and Techniques 12.2 (Mar. 1964 [T-MTT]): 197-202.

Experiments with open periodic structures are presented which show a large change in transmission at the transition from allowed to forbidden regions. At the boundaries of the forbidden regions, the radial distribution of the fields of a wave impressed upon the structure changes from one corresponding to slow-wave propagation to a field distribution corresponding to radiation. At these boundaries, the local field shapes do not change very much. However, at the boundary a large decrease in transmission through the structure is found, but with little change in input VSWR; this implies a change from real characteristic impedance to about the same value of radiation resistance. This behavior suggests applications to sharp cutoff absorptive filters.

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