Abstracts

Periodic and Guiding Structures at Microwave Frequencies

A.F. Harvey. "Periodic and Guiding Structures at Microwave Frequencies." 1960 Transactions on Microwave Theory and Techniques 8.1 (Jan. 1960 [T-MTT]): 30-61.

The paper reviews the properties of periodic and guiding structures which now play an important part in the operation of components, antennas, electron tubes and low-noise amplifiers. An account is first given of dispersive propagation in periodic-loaded lines, showing how the frequency characteristic breaks into pass and stop bands. The formation of forward- and backward-space harmonics and the effect of systematic modification of loading are examined. A description is then given of the various types of surface-wave structures including dielectric rods, dielectric-clad metals, and corrugated surfaces, as well as surface wave instruments and circuits. Practical slow-wave structures such as ladder lines, coupled cavities and helices are finally treated. The survey concludes with a bibliography.

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