Abstracts

Leaky Waveguide: TE/sup cir//sub 01/ Circular Waveguide with Periodic Array of Circular Apertures

K. Mikoshiba and M. Kamimura. "Leaky Waveguide: TE/sup cir//sub 01/ Circular Waveguide with Periodic Array of Circular Apertures." 1969 Transactions on Microwave Theory and Techniques 17.1 (Jan. 1969 [T-MTT]): 15-19.

This paper describes propagation characteristics of periodic leaky waveguides for helix waveguides and solid metal waveguides carrying a TE/sup cir//sub 01/ mode based primarily on experimental studies. For low-loss leaky waveguides, this type has not been considered feasible, because of the critical problem encountered in mode conversion-reconversion at the circular apertures. Additional loss due to the periodic array of the circular apertures and TE/sup cir//sub 01/ loss/frequency characteristics of the periodic leaky waveguide using helix waveguides and solid metal waveguides are measured by the shuffle-pulse method in the X-band. The periodic leaky waveguides using solid metal waveguides are seen to be acceptable for practical use as a low-loss leaky waveguide system, according to these measurements.

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