Abstracts

On the Mode and Square Correspondence Between Circular Multimode Tapered Waveguides

C.C.H. Tang. "On the Mode and Square Correspondence Between Circular Multimode Tapered Waveguides." 1967 Transactions on Microwave Theory and Techniques 15.5 (May 1967 [T-MTT]): 314-317.

In an axially straight multimode circular waveguide taper excited with a pure TE/sup /spl circle// /sub 11/ dominant mode, the first and only converted mode at and near cutoff is the TM/sup/spl circle// /sub 11/ mode. It is shown that in an axially straight multimode square waveguide taper excited with a pure TE/sup/spl square// /sub 10/ dominant mode, the TM/sup/spl square// /sub 12/ mode corresponding to the TM/sup/spl circle// /sub 11/ mode in circular case is not the only first converted mode at and near cutoff. The overall behavior or coupling mechanism of waveguides is similar whether the waveguide is rectangular, square, circular, or elliptical: i.e., the overall coupling coefficient at cutoff of a converted mode or modes approaches an ininfinity of the order 0/sup -¼/.

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