Abstracts

Analysis and Design of TE/sub 11/-to-HE/sub 11/ Corrugated Cylindrical Waveguide Mode Converters

G.L. James. "Analysis and Design of TE/sub 11/-to-HE/sub 11/ Corrugated Cylindrical Waveguide Mode Converters." 1981 Transactions on Microwave Theory and Techniques 29.10 (Oct. 1981 [T-MTT]): 1059-1066.

A theoretical parametric study is given of a TE/sub 11/-to-HE/sub 11/ mode converter consisting of a section of cylindrical corrugated waveguide with varying slot depth. The analysis makes use of modal field-matching techniques to determine the scatter marks of the mode converter from which we deduce its propagation properties. It is shown that a mode converter consisting of only five slots achieves a return loss better than 30dB over the band 2.7<ka<3.8 (where a is the internal radius of the waveguide) with the HE/sub 11/ mode in the balanced conditions at ka=2.9. The predicted results are in very good agreement with experimental data.

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