Abstracts

Equalization of Waveguide Delay Distortion (Nov. 1965 [T-MTT])

E.N. Torgow. "Equalization of Waveguide Delay Distortion (Nov. 1965 [T-MTT])." 1965 Transactions on Microwave Theory and Techniques 13.6 (Nov. 1965 [T-MTT]): 756-762.

Microwave all-pass circuits, consisting of reactive networks used in conjunction with wide-band circulators or couplers, are described. An extremely useful all-pass circuit for minimizing phase distortion results when the restive network is a linear taper extending beyond cutoff. The delay characteristics of this circuit are well suited to the correction of the dispersive characteristics of TE or TM mode waveguides. Design formulas have been derived for the parameters of the tapers and a set of design curves is presented. The use of composite tapered sections and the use of tapers in conjunction with other equalizing circuits are described. Experimental results have been obtained for the phase of the reflection factor of a linear taper. Close agreement was observed between the results predicted by theory and the experimental data. Typical examples demonstrate that the time-delay variation of a length of uniform waveguide can be substantially reduced by linearly tapered waveguide equalizers.

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