Abstracts

The Reflecting Beam Waveguide

J.E. Degenford, M.D. Sirkis and W.H. Steier. "The Reflecting Beam Waveguide." 1964 Transactions on Microwave Theory and Techniques 12.4 (Jul. 1964 [T-MTT]): 445-453.

In this paper a type of beam waveguide which uses appropriately shaped metal reflectors instead of dielectric lenses as the phase correcting devices is described. A theory has been developed which, subject to certain restrictions, describes the modes of this type of beam waveguide and predicts a loss of the order of 0.01 db per iteration. A reflecting beam waveguide comprising eight aluminum reflectors has been investigated at a wavelength of 4 millimeters. The measured loss per iteration is approximately 0.015 db which is in good agreement with the theoretical value. The cross-sectional electric field distribution has also been measured and found to be in satisfactory agreement with the theory. It is shown that the reflecting beam waveguide is a practical system for the transmission of power at submillimeter wavelengths.

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