Abstracts

Theory of a Thermal Gradient Gas Lens (Nov. 1965 [T-MTT])

D. Marcuse. "Theory of a Thermal Gradient Gas Lens (Nov. 1965 [T-MTT])." 1965 Transactions on Microwave Theory and Techniques 13.6 (Nov. 1965 [T-MTT]): 734-739.

The analysis of the gas lens presented in an earlier paper is extended to a more complete ray optics description. The focal length and principal surface of the gas lens have been computed. It is found that the focal length reaches a minimum as a function of flow velocity and that the two principal surfaces coincide very nearly, making the device approximately a thin lens. The gas lens is not free of distortions. The principal surface is not a plane, and the focal length measured from the principal surface depends on the distance of the ray from the lens axis. This dependence is rather weak for gas flow rates minimizing the focal length.

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