Abstracts

A Traveling-Wave Electron Deflection System

R.C. Honey. "A Traveling-Wave Electron Deflection System." 1954 Transactions on Microwave Theory and Techniques 2.2 (Jul. 1954 [T-MTT]): 2-9.

Several types of traveling-wave electron deflection structures that can be used in microwave oscillographs are described and compared. An interaction structure consisting of a folded wire over a plane is considered in detail, both theoretically and experimentally. A general analysis of the interaction of electrons with sinusoidally varying transverse electric fields is presented and is applied to traveling-wave deflection systems. This analysis gives quantitative information about the interdependence of deflection and drift space lengths, beam velocities, frequencies and phase velocities along the structure. Limitations on the design and performance of traveling-wave deflection systems can be determined from this analysis.

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