

Abstracts

A Study of a Serrated Ridge Waveguide

H.S. Kirschbaum and R. Tsu. "A Study of a Serrated Ridge Waveguide." 1959 Transactions on Microwave Theory and Techniques 7.1 (Jan. 1959 [T-MTT]): 142-148.

The serrated, or periodically slotted ridge produces a periodic loading which retards the phase velocity of the wave in a waveguide. Such structures may be used to provide a variable index of refraction for microwave lenses and as elements in microwave filters. Two approaches are presented in this paper giving the frequency dependence of the index of refraction. One is based on equivalent circuit representations which are qualitatively valid for the effect of the loading. Circuit parameters which determine the shape of the index of refraction curve are calculated from the experimental data. The other approach providing a purely analytic expression of the index of refraction is derived by a field matching method. Calculations show good agreement with test data.

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