Abstracts

Further Generalization of Waveguide Theorems (Correspondence)

P. Chorney, A. Bers and P. Penfield. "Further Generalization of Waveguide Theorems (Correspondence)." 1967 Transactions on Microwave Theory and Techniques 15.1 (Jan. 1967 [T-MTT]): 58-59.

In a recent paper by Laxpati and Mittra, the bidirectional waveguide theorems were extended to both periodic and open waveguide structures. In the original derivation of the theorems an artifice was employed in which Poynting's theorem was applied to a standing complex wave setup in the general bidirectional waveguide by a shorting plane. The point was well taken in the recent paper that a short-circuit termination is not necessary and that the same results may be derived in just as straightforward a manner by considering a termination of arbitrary, non-zero reflection coefficient which also sets up a complex standing wave. The important features of the power and pseudo-energy relations result from the cross terms arising in the complex standing wave and are lost if only a traveling-wave without a reflection is operated on by Poynting's theorem.

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