Abstracts

Characteristics and design consideration of leaky-wave NRD-guides for use as millimeter-wave antenna

S.J. Xu, Xiang-Yin Zeng, Ke Wu and Kwai-Man Luk. "Characteristics and design consideration of leaky-wave NRD-guides for use as millimeter-wave antenna." 1998 Transactions on Microwave Theory and Techniques 46.12 (Dec. 1998, Part II [T-MTT] (1998 Symposium Issue)): 2450-2456.

Leaky-wave characteristics of a class of nonradiative dielectric (NRD)-guides with various shapes of trapezoidal cross section are systematically studied for their potential applications in low-cost millimeter-wave antennas. A numerical technique is applied to model these irregular structures. The technique is formulated by effectively combining a multimode network theory with a mode-matching method. Our emphasis in this work is on the investigation of parametric effects in connection with the trapezoidal dimensions on leakage properties of the NRD-guide. Extensive results are presented to derive some useful guidelines for the design considerations of new types of NRD-guide leaky-wave antennas.

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