Abstracts

Spectrum of corrugated and periodically loaded waveguides from classical matrix eigenvalues

S. Amari, R. Vahldieck, J. Bornemann and P. Leuchtmann. "Spectrum of corrugated and periodically loaded waveguides from classical matrix eigenvalues." 2000 Transactions on Microwave Theory and Techniques 48.3 (Mar. 2000 [T-MTT]): 453-460.

The paper presents a rigorous full-wave analysis of propagation in corrugated and periodically loaded waveguides. The propagation constants are determined from the classical eigenvalues of a canonical matrix eigenvalue problem instead of a determinant. The entries of the matrix are computed only once per frequency point. The entire k/sub 0/-/spl beta/ diagram of a corrugated circular waveguide, a circular waveguide periodically loaded with dielectric disks, and a rectangular waveguide periodically loaded with capacitive irises are determined and compared with results of other researchers. Excellent agreement is documented in each case.

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