Abstracts

Cutoff Wavelengths of Ridged, Circular, and Elliptic Guides

A.-M.A. El-Sherbiny. "Cutoff Wavelengths of Ridged, Circular, and Elliptic Guides." 1973 Transactions on Microwave Theory and Techniques 21.1 (Jan. 1973 [T-MTT]): 7-12.

Cutoff wavelengths of TE and TM modes in doubly ridged guides of elliptical cross section have been calculated using an exact method. Closed-form expressions in terms of Mathieu functions have been obtained for the cutoff frequencies and eigenfunctions describing the field distribution for different modes. These solutions are further extended to include the case of doubly and quadruply ridged guides of circular cross section and to calculate the slot coupling of two waveguides with semielliptical or circular cross sections. The dual problem of the coaxial strip guide has also been treated using the same method.

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