Abstracts

Mode-Matching Analysis of the Step Discontinuity in Elliptical Waveguides

P. Matras, R. Bunger and F. Arndt. "Mode-Matching Analysis of the Step Discontinuity in Elliptical Waveguides." 1996 Microwave and Guided Wave Letters 6.3 (Mar. 1996 [MGWL]): 143-145.

The modal scattering matrix of the step discontinuity of two elliptical waveguides of different cross sections is calculated rigorously by the direct mode-matching method using the Mathieu equation. For the convenient treatment of the Mathieu functions, an efficient trigonometric series expansion technique is used. As examples, the input reflection coefficients are calculated of two step discontinuities, a nearly circular-to-circular waveguide transition and a transition from larger to smaller confocal elliptical waveguide. Excellent agreement with reference results verifies the accuracy of the presented.

❑ Return to main document.