Abstracts

An approach to the analysis of arbitrarily shaped helical groove waveguides

Yanyu Wei, Wenxiang Wang and Jiahong Sun. "An approach to the analysis of arbitrarily shaped helical groove waveguides." 2000 Microwave and Guided Wave Letters 10.1 (Jan. 2000 [MGWL]): 4-6.

A simple but accurate approach to the analysis of the arbitrarily shaped helical groove structures is presented in this letter. The unified dispersion equation is obtained by means of an approximate field-theory analysis, in which the profile of the groove is approximately replaced by a serious of steps and the field continuity at the interface of two neighboring steps together with the matching conditions at the interface between the groove region and central region are employed. The derived transcendental equation is resolved numerically. A half-circular helical groove structure was manufactured and the cold measurement was made. The experimental data are in good agreement with the numerical calculation results.

❑ Return to main document.