

研究简报

任意曲线槽波导色散和损耗特性的高次有限元分析

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摘要

本文用高次有限元法分析了任意形状槽波导的色散和损耗特性. 该方法的有效性和可靠性由实验和其它计算结果所证实. 文中对诸如矩形、三角形、抛物、椭圆和余弦等形状的槽波导进行了系统的研究. 计算结果表明, 不同形状槽波导具有相近的色散特性, 但损耗相差很大, 其中V形槽波导损耗最小, 大约是矩形槽波导的一半. 文中给出的曲线可供设计槽波导元件和电路时参考.

关键词 [曲线槽波导](#) [色散](#) [损耗](#) [高次有限元](#)

分类号

HIGH-ORDER FINITE ELEMENT ANALYSIS OF DISPERSION AND LOSS CHARACTERISTICS OF GROOVE GUIDE WITH ARBITRARY SHAPES

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Abstract

The dispersion and loss characteristics of groove guide with arbitrary shapes are analyzed with high-order finite element method. The effectiveness and the reliability of the method are verified by the experiments and the results obtained by other methods. Groove guides with various groove shapes, such as reorangular, triangular, parabolic, elliptic and cosine functions are investigated systematically. The calculating results show that the dispersion of groove guide with different groove shape is almost the same; the loss characteristic is rather different, among them. V-shape groove has the lowest loss, which is about half of the loss of rectangular groove guide. All the curves and .the data given in this paper can be used in designing the elements and circuits composed of the groove guide.

Key words [Curved groove guide](#) [Dispersion](#) [Loss](#) [High-order finite element](#)

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