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研究简报

任意曲线形状介质栅漏波天线辐射特性的改进微扰法分析

徐善驾, 武新章

中国科学技术大学无线电系 合肥 230027

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摘要
本文是对作者前一工作(1990)的补充和发展, 文中用改进的微扰法分析了任意曲线形状介质栅漏波天线的辐射特性。所得数据和用场匹配方法得到的精确值进行了比较。结果表明, 本文方法在保持相同精度的情况下, 极大地简化了求解过程; 并据此系统地研究了周期槽形状对介质栅漏波天线辐射特性的影响。文中给出的曲线可供设计介质栅天线时参考。

关键词

介质栅漏波天线 任意曲线形状 改进微扰法

分类号

IMPROVED PERTURBATION ANALYSIS OF DIELECTRIC GRATING ANTENNAS WITH ARBITRARY GROOVEP ROFILES

Xu Shanjia, Wu Xinzhang

University of Science and Technology of Chinar Hefei 230027

Abstract
A supplement and an expansion of authers previeous work (1990) are presented. The improved perturbation method is used for analyzing the radiation characteristics of the millimeterwave dielectric grating antennas with various groove profiles. A comparison between the results given and those obtained by the rigorous calculations shows that the present analysis yields as highly accurate results as the rigorous method but the calculation procedure is tremendously simplified. Based on this, the effects of groove profiles on the performances of the grating antennas are systemetically studied. The curves given in this paper may be used as reference for designing the dielectric grating antennas.

Key words Dielectric grating antenna Arbitrary groove profile Improved perturbation ethod

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通讯作者

作者个人主页 徐善驾; 武新章