



T形线散射电流的麦克斯韦电路

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Scattering Current Analysis of T-Shaped Wires with the Theory of Maxwellian Circuits

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摘要

运用最新提出的麦克斯韦电路理论, 分析T形线的散射电流. 将该结构等效为LC电路, 求解与之对应的微分方程, 得到该结构的散射电流. 数值实验分别计算了T形线的等效电路参数 L, C, α, β , 以及相应的散射电流. 分析结果表明, 所得电路参数和散射电流符合物理现象, 并且与矩量法的结果以及相关文献中的结果均吻合, 从而证明了该方法的正确性和有效性.

关键词: [麦克斯韦电路](#); [T形线](#); [散射电流](#); [矩量法](#)

Abstract:

The scattering current of T-shaped wires is analyzed with the recently proposed theory of Maxwellian circuits (MC). The structure is equivalent to LC circuit, and the scattering currents can be worked out from the differential equations relevant to the circuit. In the numerical experiments, circuit parameters L, C, α, β and scattering currents of two T-shaped structures are calculated. The analysis shows that circuit parameters and scattering currents are not only in accordance with the physical concepts, but also agree with the results of the method of moments (MoM), and with those reported in the literature. Thus the described method is valid and efficient.

Keywords: [Maxwellian circuits](#); [T-shaped wires](#); [scattering currents](#); [method of moment \(MoM\)](#)

收稿日期: 2009-10-20;

基金资助:

上海市重点学科建设资助项目 (S30108); 上海市科委重点实验室开放课题资助项目 (SKLSFO201005)

引用本文:

吴明亮, 沈文辉, 薛昌韡等. T形线散射电流的麦克斯韦电路[J]. 上海大学学报(自然科学版), 2011, V17(2): 132-137

WU Ming-Liang, CHEN Wen-Hui, XUE Chang-Wei etc. Scattering Current Analysis of T-Shaped Wires with the Theory of Maxwellian Circuits[J]. J. Shanghai University (Natural Science Edition), 2011, V17(2): 132-137

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