[1]刘宗全,钱祖平,韩振平,等.一种新型弹载共形多极化天线的设计与实现[J].弹箭与制导学报,2012,3:27-30.

LIU Zongquan,QIAN Zuping,HAN Zhenping,et al.The Design and Implementation of a New Missile-borne Conformal Multi-polarization Antenna[J].,2012,3:27-30.

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一种新型弹载共形多极化天线的设计与实现(PDF)

《弹箭与制导学报》[ISSN:1673-9728/CN:61-1234/TJ] 期数: 2012年第3期 页码: 27-30 栏目: 导弹与制导技术 出版日期: 2012-06-25

Title: The Design and Implementation of a New Missile-borne Conformal Multi-polarization Antenna

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关键词: 弹载天线; 共形天线; 多极化; 单极子

Keywords: missile-borne antenna; conformal antenna; multi-polarization; monopole

分类号: TN82

DOI: -

文献标识码: A

摘要: 为满足弹载共形天线宽波束的要求,设计了一种新型多极化天线。该天线有工作在圆极化和线极化的两个端口,分别由圆形贴片和加载圆盘的单极子天线实现,可接收空间三个互相正交的电场分量。通过在圆形贴片和圆盘间短接铜柱对单极子天线的匹配进行调节。实测结果表明,圆极化和线极化端口回波损耗小于-10dB的频率范围为1.21～1.85GHz和1.54～1.61GHz,轴比小于3dB的带宽为1.45～1.8GHz,端口间隔离度大于15dB。该天线结构紧凑,剖面低,能够满足弹载共形天线的要求。

Abstract: In order to meet broad-beamwidth demand of missile-borne antenna, a new multi-polarization antenna was designed. The antenna contains two ports working with linear and circular polarization, so that it can receive three orthogonal components of electric field in space. Linear and circular polarizations are realized by a circular patch and monopole antenna loaded by a disc respectively. Copper poles are added between circular patch and disc to adjust the matching of monopole antenna. The measurement results show that impedance bandwidth in which return loss is less than -10dB are 1.21～1.85GHz and 1.54～1.61GHz for linear-polarization and circular-polarization ports respectively. The bandwidth for axial ratio(AR)<3dB is 1.45～1.8GHz. The isolation between two ports is larger than 15dB. The antenna can be used as missile-borne antenna for its advantages of compact structure and low profile.

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备注/Memo: 收稿日期:2011-09-28 基金项目:国家自然科学基金(60872046)资助作者简介:刘宗全(1984-),男,安徽巢湖人,硕士研究生,研究方向:天线技术。

更新日期/Last Update: 2012-06-25