[1]司伟建,刘海朝,郝 鑫.雷达信号脉内调制识别及其FPGA实现[J].弹箭与制导学报,2012,6:147-150.

SI Weijian,LIU Haichao,HAO Xin.Radar Pulse Modulation Recognition and Its FPGA Implementation[J].,2012,6:147-150.

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雷达信号脉内调制识别及其FPGA实现(PDF)

《弹箭与制导学报》[ISSN:1673-9728/CN:61-1234/TJ] 期数: 2012年第6期 页码: 147-150 栏目: 相关技术 出版日期: 2012-12-25

Title: Radar Pulse Modulation Recognition and Its FPGA Implementation

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关键词: 脉内调制; 时域累加; 时频变换; FPGA实现

Keywords: pulse modulation; cumulative time domain; time-frequency transform; FPGA

分类号: TN 911

DOI: -

文献标识码: A

摘要: 为了解决雷达信号脉内调制方式的自动识别问题,提出了一种简单实用的调制类型识别方法。通过对比不同脉内调制信号的特性,运用3dB带宽测量,时域累加,时频变换的方法,能够快捷的识别出常规雷达信号、BPSK信号、QPSK信号、FSK信号、LFM信号、NLFM信号六种不同雷达信号。仿真结果表明,该方法具有较高的识别概率。并且通过FPGA实现,验证了该方法的有效性和实用性。

Abstract: For automatic recognition of radar pulse modulation mode, a simple and practical modulation recognition method was proposed. According to comparison of characteristics of the different pulse modulation signal, six different signals including conventional radar signal, BPSK signal, QPSK signal, FSK signal, LFM signal, NLFM signal can be quickly identified by measurement of the 3dB bandwidth, time-domain cumulative and time-frequency transform methods. Simulation results show that the method has a high identification probability. This method is verified to have effectiveness and practicality by implementation on the FPGA.

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