

论文

伪码-载波调频侦察信号识别的谱相关方法(I) --伪码-载波调频信号的谱相关函数

熊刚^①,赵惠昌^①,林俊^②

^①南京理工大学电子工程系,南京,210094;^②解放军理工大学通信学院,南京,210094

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摘要

研究了伪码-载波调频信号的谱相关函数(SCF),具体针对伪随机二相编码(PRBC)信号及其与正弦调频和线性调频复合信号进行了研究.从谱相关函数和模糊函数(AF)的关系出发,利用平稳随机过程的线性周期时变变换定理,详细推导了3种复合信号的谱相关函数表达式,分析了其特性.通过对频率 f 截面和循环频率 α 截面谱相关特征分析表明,谱相关函数不仅能体现载波调制信息和与伪码有关的各项参数,而且对于高斯白噪声有很好的抑制作用,这为进一步通过谱相关方法对伪码-载波调频信号的调制分类和参数识别奠定了理论基础.

关键词 [谱相关](#) [伪码调相](#) [正弦调频](#) [线性调频](#)

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Reconnaissance Signal Recognition of PN Code-Carrier FM Based on Spectral Correlation Method(I) -Spectral Correlation Function of PN Code-Carrier FM

Xiong Gang^①, Zhao Hui-chang^①, Lin jun^②

^①Department of Electronic Engineering, Nanjing University of Science and Technology, Nanjing 210094, China; ^②Communication Academy, PLA University of Science and Technology, China

Abstract

The spectral correlation function of PN code-carrier FM is studied, especially for PRBC, SFM-PRBC and LFM-PRBC. Based on the relation between SCF and AF, and LPTV theory of stationary stochastic process, in detail, the SCF of the above three compound signals is derived respectively, whose characterization is also exploited. By the characteristic analyse of SCF of f -section and α -section, it shows that the SCF includes the information of carrier FM and PN code while the WGN is well suppressed, and all of those establish theoretic foundation for the signal recognition and parameter estimation of PN code-carrier FM based on the SC method.

Key words [Spectral correlation](#) [PN phase modulation](#) [Sine Frequency Modulation \(SFM\)](#) [LFM](#)

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通讯作者

作者个人主页 熊刚^①;赵惠昌^①;林俊^②

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