

## 具有连续相位调制特性的甚小线性调频键控信号分析

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## Analysis of Very Minimum Chirp Keying Signals with Continuous Phase Modulation Characteristics

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摘要 甚小线性调频键控(very minimum chirp keying,VMCK)调制方式具有超窄带特性.采用连续相位调制的一般分析方法,选用线性信号作为积分脉冲,给出VMCK的连续相位调制表达式,并构造出一种新型的发射机结构.推导VMCK信号的归一化功率谱密度公式,以功率百分比带宽为考核准则,证明在正交二元信号下,VMCK比最小频移键控(minimum shift keying,MSK)具有更窄的主瓣宽度和更低的旁瓣能量,即带宽更具有效性.

关键词: 超窄带 连续相位调制 甚小线性调频键控 最小频移键控 功率谱

Abstract: The very minimum chirp keying (VMCK) modulation possesses characteristics of an ultra narrow band (UNB). This paper uses a general analysis method of continuous phase modulation (CPM) to select a linear signal as the integral pulse, give the continual phase modulation express of VMCK, and construct a new kind of the VMCK transmitter structure. The normalization power spectral density formula of VMCK is then derived, with the power percentage bandwidth as an inspection criterion. It is proven that, for an orthogonal binary signal set, VMCK has a narrower main lobe compared with the minimum shift keying (MSK) modulation. Therefore better band width efficiency can be achieved with VMCK.

Keywords: ultra narrow band (UNB), continuous phase modulation (CPM), very minimum chirp keying (VMCK), minimum shift keying (MSK), power spectrum

收稿日期: 2010-01-08:

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引用本文:

姜俊超, 郑国莘, 邱志易等. 具有连续相位调制特性的甚小线性调频键控信号分析[J]. 上海大学学报(自然科学版), 2011, V17(3): 221-226

JIANG Dun-Chao, ZHENG Guo-Shen, QIU Zhi-Yi etc. Analysis of Very Minimum Chirp Keying Signals with Continuous Phase Modulation Characteristics[J]. J.Shanghai University (Natural Science Edition), 2011, V17(3): 221-226

链接本文:

<http://www.journal.shu.edu.cn//CN/10.3969/j.issn.1007-2861.2011.03.001> 或 <http://www.journal.shu.edu.cn//CN/Y2011/V17/I3/221>

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