抑制OFDM系统峰值再生的边带信息传输算法

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摘要　　针对在正交频分复用系统中传统边带信息传输方案会引起峰值再生及改变原始正交频分复用符号结构的缺点，提出一种新的可以抑制峰值再生的边带信息传输算法．该算法通过将相邻多个正交频分复用符号的边带信息集中到一个特定符号进行传输，不影响原始正交频分复用符号结构．通过仿真证实，当互补累积分布函数为10^{-3}时，采用新算法后峰值平均功率比大约降低1.57dB．同时，通过重复该特定符号来保证边带信息的准确性．由于两个相同的符号之间具有最大的相关性，因此可以用来实现正交频分复用符号的帧同步．

关键词　　正交频分复用　峰均功率比　边带信息　最大似然估计

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Side information transmission method for peak re-growth reduction in the OFDM system

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Abstract

A novel side information transmission method for PAPR(peak-to-average power ratio) reduction in OFDM(orthogonal frequency division multiplexing) systems is presented, which can avoid the peak re-growth and the change of the structure of original OFDM signals which normally accompany the conventional methods. Simulation shows that the PAPR is reduced about 1.57dB with the new method for the CCDF(complementary cumulative density function) of 10^{-3}. At the same time, the accuracy of the side information can be ensured by repeating this certain OFDM symbol. Because the two same symbols have the maximal relativity, this characteristic can be used to achieve frame synchronization. Simulation result shows that the proposed scheme can prominently reduce the occurrence of peak re-growth brought by the conventional methods and help to achieve frame synchronization.

Key words　orthogonal frequency division multiplexing　peak-to-average power ratio　side information　maximum-likelihood

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