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论文

# 降低OFDM系统峰均功率比的自适应多级SLM方法

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摘要:

提出了一种基于选择性映射(SLM)降低OFDM系统峰均功率比(PAPR)的自适应多级SLM(AMSLM)方法。该方法通过逐级实施选择性映射,各级采用不同的相位加权因子集合,使得级间候选向量之间的相关性得到降低,从而使PAPR性能获得了更大地改善;同时设定适当的门限值,若当前级所获得的PAPR最低值大于该门限值,则自动进入下一级优化过程,否则终止整个优化过程。仿真结果表明,与SLM方法相比,AMSLM方法可以获得几乎相同或者更好的PAPR性能,同时,计算复杂度也得到了明显地降低, 如当总级数为4时,AMSLM方法的计算复杂度较SLM降低了47 81%。

关键词: 正交频分复用;峰均功率比;选择性映射

## Adaptive multistage SLM scheme for PAPR reduction in OFDM system

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Abstract:

Based on selected mapping (SLM) for peak to average power ratio (PAPR) reduction in OFDM system, an improved version, named adaptive multistage selected mapping (AMSLM) is proposed. By using different phase weighting factor set and selected mapping in each stage, the property of correlation of candidate vectors in different stages is reduced, which improves the PAPR performance. Moreover, with the purpose of reducing the computational complexity, a proper threshold is introduced, where if the minimum value of PAPR obtained in current stage is higher than the threshold, the optimization process for next stage will continue; otherwise, the whole optimization process will be terminated. Simulation results show that, compared with SLM, proposed AMSLM scheme has almost the same or better performance in PAPR reduction. Meanwhile, the computational complexity is reduced dramatically, where AMSLM with four stages outperforms SLM by 47 81% in computational complexity.

Keywords: orthogonal frequency division multiplexing; peak to average power ratio; selected mapping

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