

产品、研发、测试

过采样NPR DFT调制滤波器组设计

刘霁锋¹, 王小龙²

1.西安电子科技大学 理学院 数学系,西安 710071

2.西安电子科技大学 雷达信号处理国家重点实验室,西安 710071

收稿日期 修回日期 网络版发布日期 2007-8-29 接受日期

摘要 提出了一种具有不同分析和综合原型滤波器的过采样几乎完全重构(NPR)DFT调制滤波器组的更为简单的设计方法。按照滤波器组的通带、阻带、系统失真要求,以系统整体失真误差作为目标函数,分析和综合原型滤波器的阻带能量作为约束条件,同时引入了更简单的通带平坦性约束。与目前的设计方法相比,该方法可以得到性能更好的滤波器组,仿真的结果也证实了这点。

关键词 [过采样](#) [DFT调制滤波器组](#) [几乎完全重构](#)

分类号

Design of oversampled NPR DFT modulated filter bank

LIU Ji-feng¹, WANG Xiao-long²

1.Department of Mathematics, Science School, Xidian University, Xi'an 710071, China

2.Key Lab. for Radar Signal Processing, Xidian University, Xi'an, 710071, China

Abstract

A new simpler method for the design of oversampled Nearly Perfect Reconstruction (NPR) DFT modulated filter banks with different analysis and synthesis prototype filters is presented. In terms of the requirements on the passband, stopband, and system distortion of the filter bank, the design method involves the minimization of the system distortion while constraining the stopband energy of the analysis and synthesis prototype filters. The simpler constraint about passband flatness is introduced at the same time. The proposed method can generate filters with significantly better performance than filters obtained using current design methods, which is also verified by the numerical examples.

Key words [oversampled](#) [DFT modulated filter bank](#) [nearly perfect reconstruction](#)

DOI:

通讯作者 刘霁锋 [E-mail: ljf271828@163.com](mailto:ljf271828@163.com)

扩展功能

本文信息

▶ [Supporting info](#)

▶ [PDF\(1615KB\)](#)

▶ [\[HTML全文\]\(0KB\)](#)

▶ [参考文献](#)

服务与反馈

▶ [把本文推荐给朋友](#)

▶ [加入我的书架](#)

▶ [加入引用管理器](#)

▶ [复制索引](#)

▶ [Email Alert](#)

▶ [文章反馈](#)

▶ [浏览反馈信息](#)

相关信息

▶ 本刊中 [包含“过采样”的相关文章](#)

▶ 本文作者相关文章

· [刘霁锋](#)

· [王小龙](#)