NON-UNIFORM NEAR-PERFECT-RECONSTRUCTION OVERSAMPLED DFT FILTER BANKS BASED ON ALLPASS-TRANSFORMS

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ABSTRACT

In this contribution we discuss an oversampled non-uniform DFT filter bank, which is derived by allpass frequency transformations from its uniform version. Here, a perfectreconstruction (PR) solution generally requires a non-stable synthesis filter bank. As a new result we show that by alleviating the PR conditions it is possible to construct a stable synthesis system, where the subband filters are of FIR type. The delay of the resulting near-PR system can be efficiently controlled by a factorization of the analysis and synthesis filter bank into lifting steps.