
# EFFICIENT NON−UNIFORM FILTER−BANK EQUALIZER (WedAmPO2)

**Author(s) :**

Heinrich Wilhelm Löllmann (IND, RWTH Aachen University, Germany)
Peter Vary (IND, RWTH Aachen University, Germany)

**Abstract :**

An efficient realization of a low delay filter−bank will be proposed, which can be regarded as a filter−bank used as equalizer with either fixed or time−varying spectral gain factors. The proposed filter−bank equalizer (FBE) results in a time−domain filter whose coefficients are adapted in the (short−term) spectral−domain. Perfect signal reconstruction is obtained for a broad class of spectral transforms, including the generalized discrete Fourier transform (GDFT), the Walsh and Hadamard transform, with less restrictions compared to a common analysis−synthesis filter−bank (AS FB). A non−uniform frequency resolution can be achieved by frequency warping based on an allpass transformation. In this case, the filter−bank equalizer can achieve near perfect signal reconstruction with lower effort than for an allpass transformed analysis−synthesis filter−bank. The filter−bank equalizer is especially useful for adaptive filtering requiring a low signal delay with coefficient adaptation based on frequency−domain algorithms.

**Menu**