Dynamic range compression with low distortion for use in hearing aids and audio systems

ABSTRACT

Dynamic range compression in the hearing aids is provided for restoring normal loudness of low level sounds without making the high level sounds uncomfortably loud. An apparatus along with a method using sliding-band compression is disclosed for significantly reducing the temporal and spectral distortions generally associated with the currently used single and multiband compression techniques. It uses a frequency-dependent gain function calculated on the basis of auditory critical bandwidth based short-time power spectrum and the specified hearing thresholds, compression ratios, and attack and release times. It is realized using FFT-based analysis-synthesis and can be integrated with other FFT-based signal processing in hearing aids and audio systems.

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