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

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Field of Classification Search
None
See application file for complete search history.

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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.

15 Claims, 7 Drawing Sheets