signal by obtaining a noise signal in response to the noise-blending parameter, modifying the regenerated signal by adjusting amplitudes of the regenerated spectral components according to the estimated spectral envelope and the noise-blending parameter, and combining the modified regenerated signal with the noise signal; and obtaining a time-domain representation of the reconstructed signal corresponding to a combination of the spectral components in the adjusted regenerated signal with spectral components in the frequency-domain representation of the baseband signal.

Another aspect of the present invention is a method for reconstructing an audio signal having a baseband portion and a highband portion, the method comprising: deformatting an encoded audio signal into a first part and a second part; obtaining a decoded baseband audio signal by decoding the first part, wherein the first part includes spectral components of the baseband portion and does not include spectral components of the highband portion, wherein the number of the spectral components of the baseband portion may vary dynamically; extracting, from the second part, a noise parameter and an estimated spectral envelope of the highband portion; obtaining a plurality of subband signals by filtering the decoded baseband audio signal; generating a high-frequency reconstructed signal by copying a number of consecutive subband signals of the plurality of subband signals; obtaining an envelope adjusted high-frequency signal by adjusting, based on the estimated spectral envelope of the highband portion, a spectral envelope of the high-frequency reconstructed signal, wherein a frequency resolution of the estimated spectral envelope is adaptive; generating a noise component based on the noise parameter, wherein the noise parameter indicates a level of noise contained in the highband portion; obtaining a combined high-frequency signal by adding the noise component to the envelope adjusted high-frequency signal; and obtaining a time-domain reconstructed audio signal by combining the decoded baseband audio signal and the combined high-frequency signal; wherein the method is

implemented by an audio decoding device comprising one or more hardware elements.

Other aspects of the present invention are described below and set forth in the claims.

The various features of the present invention and its preferred implementations may be better understood by referring to the following discussion and the accompanying drawings in which like reference numerals refer to like elements in the several figures. The contents of the following discussion and the drawings are set forth as examples only and should not be understood to represent limitations upon the scope of the present invention.

BRIEF DESCRIPTION OF DRAWINGS

Fig.1 illustrates major components in a communications system.

Fig. 2 is a block diagram of a transmitter.

Figs. 3A and 3B are hypothetical graphical illustrations of an audio signal and a corresponding baseband signal.

Fig. 4 is a block diagram of a receiver.