Claims

1. An audio encoder (100; 200) for providing an encoded audio information (112; 212) on the basis of an input audio information (110; 210), the audio encoder comprising:

a low frequency encoder (120; 220) configured to encode a low frequency portion of the input audio information to obtain an encoded representation (122; 222) of the low frequency portion; and

a bandwidth extension information provider (130; 230) configured to provide bandwidth extension information (132; 232) on the basis of the input audio information;

wherein the audio encoder is configured to selectively include bandwidth extension information into the encoded audio information in a signal-adaptive manner.

2. The audio encoder (100; 200) according to claim 1, wherein the audio encoder comprises a detector (240) configured to identify portions of the input audio information which cannot be decoded with a sufficient or desired quality on the basis of the encoded representation of the low-frequency portion, and using a blind bandwidth extension; and

wherein the audio encoder is configured to selectively include bandwidth extension information into the encoded audio information for portions of the input audio information identified by the detector.

3. The audio encoder (100; 200) according to claim 1 or claim 2, wherein the audio encoder comprises a detector (240) configured to identify portions of the input audio information for which bandwidth extension parameters cannot be estimated on the basis of the low frequency portion with a sufficient or desired accuracy; and

wherein the audio encoder is configured to selectively include bandwidth extension information into the encoded audio information for portions of the input audio information identified by the detector.

4. The audio encoder (100; 200) according to one of claims 1 to 3, wherein the audio encoder comprises a detector (240) configured to identify portions of the input audio information in dependence on whether the portions are temporally stationary portions and in dependence on whether the portions have a low-pass character; and

wherein the audio encoder is configured to selectively omit an inclusion of bandwidth extension information into the encoded audio information for portions of the input audio information identified by the detector as temporally stationary portions having a low-pass character.

5. The audio encoder (100; 200) according to claim 4, wherein the detector is configured to identify portions of the input audio information in dependence on whether the portions comprise voiced speech, and/or in dependence on whether the portions comprise environmental noise, and/or in dependence on whether the portions comprise music without percussive instrumentation.

6. The audio encoder (100; 200) according to one of claims 1 to 5, wherein the audio encoder comprises a detector (240) configured to identify portions of the input audio information in dependence on whether a difference between a spectral envelope of a low frequency portion and a spectral envelope of a high frequency portion is larger than or equal to a predetermined difference measure; and

wherein the audio encoder is configured to selectively include bandwidth extension information into the encoded audio information for portions of the input audio information identified by the detector.

7. The audio encoder (100; 200) according to claim 6, wherein the detector is configured to identify portions in dependence on whether the portions comprise unvoiced speech, and/or wherein the detector is configured to identify portions in dependence on whether the portions comprise percussive sounds.

8. The audio encoder (100; 200) according to one of claims 1 to 7, wherein the audio encoder comprises a detector (240) configured to determine a spectral tilt of portions of the input audio information, and to identify portions of the input audio information in

dependence on whether the determined spectral tilt is larger than or equal to a fixed or variable tilt threshold value; and

wherein the audio encoder is configured to selectively include bandwidth extension information into the encoded audio information for portions of the input audio information identified by the detector.

9. The audio encoder (100; 200) according to claim 8, wherein the detector is further configured to determine a zero crossing rate of portions of the input audio information, and to identify portions of the input audio information also in dependence on whether the determined zero crossing rate is larger than or equal to a fixed or variable zero crossing rate threshold value or in dependence on whether the zero crossing rate comprises a temporal change which exceeds a zero crossing rate change threshold value.

10. The audio encoder (100; 200) according to one of claims 2 to 9, wherein the detector (240) is configured to apply a hysteresis for identifying signal portions of the input audio information, to reduce a number of transitions between identified signal portions and not-identified signal portions.

11. The audio encoder (100; 200) according to one of claims 1 to 10, wherein the audio encoder is configured to selectively include parameters representing a spectral envelope of a high frequency portion of the input audio information into the encoded audio information in a signal-adaptive manner as the bandwidth extension information.

12. The audio encoder (100; 200) according to one of claims 1 to 11, wherein the low frequency encoder is configured to encode a low frequency portion of the input audio information, comprising frequencies up to a maximum frequency which lies in a range between 6 and 7 kHz, and

wherein the audio encoder is configured to selectively include into the encoded audio representation between three and five parameters describing intensities of high frequency signal portions having bandwidths between 300Hz and 500Hz.

13. The audio encoder (100; 200) according to claim 12, wherein the audio encoder is configured to selectively include into the encoded audio representation 4 scalar quantized

parameters describing intensities of four high frequency signal portions, the high frequency signal portions covering frequency ranges above the low frequency portion.

14. The audio encoder (100; 200) according to claim 12 or claim 13, wherein the audio encoder is configured to selectively include into the encoded audio representation a plurality of parameters describing a relationship between energies or intensities of spectrally adjacent frequency portions, wherein one of the parameters describes a ratio or difference between an energy or intensity of a first bandwidth extension high frequency portion and a low frequency portion, and wherein other of the parameters describe ratios or differences between energies or intensities of other bandwidth extension high frequency portions.

15. An audio decoder (400; 500) for providing a decoded audio information (412; 512) on the basis of an encoded audio information (410; 510), the audio decoder comprising:

a low frequency decoder (420; 520) configured to decode an encoded representation of a low frequency portion to obtain a decoded representation (422; 522) of the low frequency portion; and

a bandwidth extension (430; 530) configured to obtain a bandwidth extension signal (432; 532) using a blind bandwidth extension for portions of an audio content for which no bandwidth extension parameters are included in the encoded audio information, and to obtain the bandwidth extension signal using a parameter-guided bandwidth extension for portions of the audio content for which bandwidth extension parameters are included in the encoded audio information.

16. The audio decoder (400; 500) according to claim 15, wherein the audio decoder is configured to decide whether to obtain the bandwidth extension signal using a blind bandwidth extension or using a parameter-guided bandwidth extension on a frame-by-frame basis.

17. The audio decoder (400; 500) according to claim 15 or claim 16, wherein the audio decoder is configured to switch between a usage of a blind bandwidth extension and a parameter-guided bandwidth extension within a contiguous piece of audio content.

18. The audio decoder (400; 500) according to one of claims 15 to 17, wherein the audio decoder is configured to evaluate flags included in the encoded audio information for different portions of the audio content, to decide whether to use a blind bandwidth extension or a parameter-guided bandwidth extension.

19. The audio decoder (400; 500) according to one of claims 15 to 17, wherein the audio decoder is configured to decide whether to use a blind bandwidth extension or a parameter-guided bandwidth extension on the basis of the encoded representation of the low frequency portion without evaluating a bandwidth extension mode signaling flag.

20. The audio decoder (400; 500) according to claim 19, wherein the audio decoder is configured to decide whether to use a blind bandwidth extension or a parameter-guided bandwidth extension on the basis of one or more features of the decoded representation of the low frequency portion.

21. The audio decoder (400; 500) according to claim 19 or claim 20, wherein the audio decoder is configured to decide whether to use a blind bandwidth extension or a parameter-guided bandwidth extension on the basis of linear prediction coefficients and/or on the basis of time domain statistics of the decoded representation of the low frequency portion.

22. The audio decoder (400; 500) according to one of claims 15 to 21, wherein the bandwidth extension is configured to obtain the bandwidth extension signal using one or more features of the decoded representation of the low frequency portion and/or using one or more parameters of the low frequency decoder for temporal portions of the input audio content for which no bandwidth extension parameters are included in the encoded audio information.

23. The audio decoder (400; 500) according to one of claims 15 to 22, wherein the bandwidth extension is configured to obtain the bandwidth extension signal using a spectral centroid information and/or using an energy information, and/or using a tilt information, and/or using filter coefficients for temporal portions of the input audio content for which no bandwidth extension parameters are included in the encoded audio information.

24. The audio decoder (400; 500) according to one of claims 15 to 23, wherein the bandwidth extension is configured to obtain the bandwidth extension signal using bitstream parameters describing a spectral envelope of a high frequency portion for temporal portions of the audio content for which bandwidth extension parameters are included in the encoded audio information.

25. The audio decoder (400; 500) according to claim 24, wherein the bandwidth extension is configured to evaluate between three and five bitstream parameters describing intensities of high frequency signal portions having bandwidths between 300Hz and 500Hz, in order to obtain the bandwidth extension signal.

26. The audio decoder (400; 500) according to claim 25, wherein the between three and five bitstream parameters describing intensities of high frequency signal portions, are scalar quantized with 2 or 3 bits resolution, such that there are between 6 and 15 bits of bandwidth extension spectral shaping parameters per audio frame .

27. The audio decoder (400; 500) according to one of claims 15 to 26, wherein the bandwidth extension is configured to perform a smoothing of energies of the bandwidth extension signal when switching from blind bandwidth extension to parameter-guided bandwidth extension and/or when switching from parameter-guided bandwidth extension to blind bandwidth extension.

28. The audio decoder (400; 500) according to claim 27, wherein the bandwidth extension is configured to dampen a high frequency portion of the bandwidth extension signal for a portion of the audio content to which a parameter guided bandwidth extension is applied following a portion of the audio content to which a blind bandwidth extension is applied; and

wherein the bandwidth extension is configured to reduce a damping or to increase a level for a high frequency portion of the bandwidth extension signal for a portion of the audio content to which a blind bandwidth extension is applied following a portion of the audio content to which a parameter guided bandwidth extension is applied.

29. A method (600) for providing an encoded audio information on the basis of an input audio information, the method comprising:

encoding (610) a low frequency portion of the input audio information to obtain an encoded representation of the low frequency portion; and

providing (620) bandwidth extension information on the basis of the input audio information;

wherein bandwidth extension information is selectively included into the encoded audio information in a signal-adaptive manner.

30. A method (700) for providing a decoded audio information on the basis of an encoded audio information, the method comprising:

decoding (710) an encoded representation of a low frequency portion to obtain a decoded representation of the low frequency portion; and

obtaining (720) a bandwidth extension signal using a blind bandwidth extension for portions of an audio content for which no bandwidth extension parameters are included in the encoded audio information, and

obtaining (730) the bandwidth extension signal using a parameter-guided bandwidth extension for portions of the audio content for which bandwidth extension parameters are included in the encoded audio information.

31. A computer program for performing the method according to claim 29 or claim 30 when the computer program runs on a computer.

32. An encoded audio representation (800) representing an audio information, the encoded audio representation comprising:

Claims

1. An audio encoder for providing an encoded audio information on the basis of an input audio information, the audio encoder comprising:

a low frequency encoder configured to encode a low frequency portion of the input audio information to obtain an encoded representation of the low frequency portion; and

a bandwidth extension information provider configured to provide bandwidth extension information on the basis of the input audio information;

wherein the audio encoder is configured to selectively include bandwidth extension information into the encoded audio information in a signal-adaptive manner;

wherein the audio encoder comprises a detector configured to identify portions of the input audio information for which bandwidth extension parameters cannot be estimated on the basis of the low frequency portion with a sufficient or desired accuracy; and

wherein the audio encoder is configured to selectively include bandwidth extension information into the encoded audio information for portions of the input audio information identified by the detector.

2. The audio encoder according to claim 1, wherein the audio encoder comprises a detector configured to identify portions of the input audio information which cannot be decoded with a sufficient or desired quality on the basis of the encoded representation of the low-frequency portion, and using a blind bandwidth extension; and

wherein the audio encoder is configured to selectively include bandwidth extension information into the encoded audio information for portions of the input audio information identified by the detector.

3. The audio encoder according to one of claims 1 to 2, wherein the audio encoder comprises a detector configured to identify portions of the input audio information in dependence on whether the portions are temporally stationary portions and in dependence on whether the portions have a low-pass character; and

wherein the audio encoder is configured to selectively omit an inclusion of bandwidth extension information into the encoded audio information for portions of the input audio information identified by the detector as temporally stationary portions having a low-pass character.

4. The audio encoder according to claim 3, wherein the detector is configured to identify portions of the input audio information in dependence on whether the portions comprise voiced speech, and/or in dependence on whether the portions comprise environmental noise, and/or in dependence on whether the portions comprise music without percussive instrumentation.

5. The audio encoder according to one of claims 1 to 4, wherein the audio encoder comprises a detector configured to identify portions of the input audio information in dependence on whether a difference between a spectral envelope of a low frequency portion and a spectral envelope of a high frequency portion is larger than or equal to a predetermined difference measure; and

wherein the audio encoder is configured to selectively include bandwidth extension information into the encoded audio information for portions of the input audio information identified by the detector.

6. The audio encoder according to claim 5, wherein the detector is configured to identify portions in dependence on whether the portions comprise unvoiced speech, and/or wherein the detector is configured to identify portions in dependence on whether the portions comprise percussive sounds.

7. The audio encoder according to one of claims 1 to 6, wherein the audio encoder comprises a detector configured to determine a spectral tilt of portions of the input audio information, and to identify portions of the input audio information in

dependence on whether the determined spectral tilt is larger than or equal to a fixed or variable tilt threshold value; and

wherein the audio encoder is configured to selectively include bandwidth extension information into the encoded audio information for portions of the input audio information identified by the detector.

8. The audio encoder according to claim 7, wherein the detector is further configured to determine a zero crossing rate of portions of the input audio information, and to identify portions of the input audio information also in dependence on whether the determined zero crossing rate is larger than or equal to a fixed or variable zero crossing rate threshold value or in dependence on whether the zero crossing rate comprises a temporal change which exceeds a zero crossing rate change threshold value.

9. The audio encoder according to one of claims 2 to 8, wherein the detector is configured to apply a hysteresis for identifying signal portions of the input audio information, to reduce a number of transitions between identified signal portions and not-identified signal portions.

10. The audio encoder according to one of claims 1 to 9, wherein the audio encoder is configured to selectively include parameters representing a spectral envelope of a high frequency portion of the input audio information into the encoded audio information in a signal-adaptive manner as the bandwidth extension information.

11. The audio encoder according to one of claims 1 to 10, wherein the low frequency encoder is configured to encode a low frequency portion of the input audio information, comprising frequencies up to a maximum frequency which lies in a range between 6 and 7 kHz, and

wherein the audio encoder is configured to selectively include into the encoded audio representation between three and five parameters describing intensities of high frequency signal portions having bandwidths between 300Hz and 500Hz.

12. The audio encoder according to claim 11, wherein the audio encoder is configured to selectively include into the encoded audio representation 4 scalar quantized

parameters describing intensities of four high frequency signal portions, the high frequency signal portions covering frequency ranges above the low frequency portion.

13. The audio encoder according to claim 11 or claim 12, wherein the audio encoder is configured to selectively include into the encoded audio representation a plurality of parameters describing a relationship between energies or intensities of spectrally adjacent frequency portions, wherein one of the parameters describes a ratio or difference between an energy or intensity of a first bandwidth extension high frequency portion and a low frequency portion, and wherein other of the parameters describe ratios or differences between energies or intensities of other bandwidth extension high frequency portions.

14. An audio decoder for providing a decoded audio information on the basis of an encoded audio information, the audio decoder comprising:

a low frequency decoder configured to decode an encoded representation of a low frequency portion to obtain a decoded representation of the low frequency portion; and

a bandwidth extension configured to obtain a bandwidth extension signal using a blind bandwidth extension for portions of an audio content for which no bandwidth extension parameters are included in the encoded audio information, and to obtain the bandwidth extension signal using a parameter-guided bandwidth extension for portions of the audio content for which bandwidth extension parameters are included in the encoded audio information;

wherein the audio decoder is configured to decide whether to use a blind bandwidth extension or a parameter-guided bandwidth extension on the basis of the encoded representation of the low frequency portion without evaluating a bandwidth extension mode signaling flag.

15. The audio decoder according to claim 14, wherein the audio decoder is configured to decide whether to obtain the bandwidth extension signal using a blind bandwidth extension or using a parameter-guided bandwidth extension on a frame-by-frame basis.

16. The audio decoder according to claim 14 or claim 15, wherein the audio decoder is configured to switch between a usage of a blind bandwidth extension and a parameter-guided bandwidth extension within a contiguous piece of audio content.

17. The audio decoder according to one of claims 14 to 16, wherein the audio decoder is configured to evaluate flags included in the encoded audio information for different portions of the audio content, to decide whether to use a blind bandwidth extension or a parameter-guided bandwidth extension.

18. The audio decoder according to one of claims 14 to 17, wherein the audio decoder is configured to decide whether to use a blind bandwidth extension or a parameter-guided bandwidth extension on the basis of one or more features of the decoded representation of the low frequency portion.

19. The audio decoder according to one of claims 14 to 18, wherein the audio decoder is configured to decide whether to use a blind bandwidth extension or a parameter-guided bandwidth extension on the basis of linear prediction coefficients and/or on the basis of time domain statistics of the decoded representation of the low frequency portion.

20. The audio decoder according to one of claims 14 to 19, wherein the bandwidth extension is configured to obtain the bandwidth extension signal using one or more features of the decoded representation of the low frequency portion and/or using one or more parameters of the low frequency decoder for temporal portions of the input audio content for which no bandwidth extension parameters are included in the encoded audio information.

21. The audio decoder according to one of claims 14 to 20, wherein the bandwidth extension is configured to obtain the bandwidth extension signal using a spectral centroid information and/or using an energy information, and/or using a tilt information, and/or using filter coefficients for temporal portions of the input audio content for which no bandwidth extension parameters are included in the encoded audio information.

22. The audio decoder according to one of claims 14 to 21, wherein the bandwidth extension is configured to obtain the bandwidth extension signal using bitstream parameters describing a spectral envelope of a high frequency portion for temporal portions of the audio content for which bandwidth extension parameters are included in the encoded audio information.

23. The audio decoder according to claim 22, wherein the bandwidth extension is configured to evaluate between three and five bitstream parameters describing intensities of high frequency signal portions having bandwidths between 300Hz and 500Hz, in order to obtain the bandwidth extension signal.

24. The audio decoder according to claim 23, wherein the between three and five bitstream parameters describing intensities of high frequency signal portions, are scalar quantized with 2 or 3 bits resolution, such that there are between 6 and 15 bits of bandwidth extension spectral shaping parameters per audio frame .

25. The audio decoder according to one of claims 14 to 24, wherein the bandwidth extension is configured to perform a smoothing of energies of the bandwidth extension signal when switching from blind bandwidth extension to parameter-guided bandwidth extension and/or when switching from parameter-guided bandwidth extension to blind bandwidth extension.

26. The audio decoder according to claim 25, wherein the bandwidth extension is configured to dampen a high frequency portion of the bandwidth extension signal for a portion of the audio content to which a parameter guided bandwidth extension is applied following a portion of the audio content to which a blind bandwidth extension is applied; and

wherein the bandwidth extension is configured to reduce a damping or to increase a level for a high frequency portion of the bandwidth extension signal for a portion of the audio content to which a blind bandwidth extension is applied following a portion of the audio content to which a parameter guided bandwidth extension is applied.

27. A method for providing an encoded audio information on the basis of an input audio information, the method comprising:

encoding a low frequency portion of the input audio information to obtain an encoded representation of the low frequency portion; and

providing bandwidth extension information on the basis of the input audio information;

wherein bandwidth extension information is selectively included into the encoded audio information in a signal-adaptive manner;

wherein the method comprises identifying portions of the input audio information for which bandwidth extension parameters cannot be estimated on the basis of the low frequency portion with a sufficient or desired accuracy; and

wherein the method comprises selectively including bandwidth extension information into the encoded audio information for identified portions of the input audio information.

28. A method for providing a decoded audio information on the basis of an encoded audio information, the method comprising:

decoding an encoded representation of a low frequency portion to obtain a decoded representation of the low frequency portion; and

obtaining a bandwidth extension signal using a blind bandwidth extension for portions of an audio content for which no bandwidth extension parameters are included in the encoded audio information, and

obtaining the bandwidth extension signal using a parameter-guided bandwidth extension for portions of the audio content for which bandwidth extension parameters are included in the encoded audio information;

wherein the method comprises deciding whether to use a blind bandwidth extension or a parameter-guided bandwidth extension on the basis of the encoded

representation of the low frequency portion without evaluating a bandwidth extension mode signaling flag.

29. A computer program for performing the method according to claim 27 or claim 28 when the computer program runs on a computer.

30. An audio encoder for providing an encoded audio information on the basis of an input audio information, the audio encoder comprising:

a low frequency encoder configured to encode a low frequency portion of the input audio information to obtain an encoded representation of the low frequency portion; and

a bandwidth extension information provider configured to provide bandwidth extension information on the basis of the input audio information;

wherein the audio encoder is configured to selectively include bandwidth extension information into the encoded audio information in a signal-adaptive manner;

wherein the audio encoder comprises a detector configured to identify portions of the input audio information in dependence on whether a difference between a spectral envelope of a low frequency portion and a spectral envelope of a high frequency portion is larger than or equal to a predetermined difference measure; and

wherein the audio encoder is configured to selectively include bandwidth extension information into the encoded audio information for portions of the input audio information identified by the detector.

31. An audio encoder for providing an encoded audio information on the basis of an input audio information, the audio encoder comprising:

a low frequency encoder configured to encode a low frequency portion of the input audio information to obtain an encoded representation of the low frequency portion; and

a bandwidth extension information provider configured to provide bandwidth extension information on the basis of the input audio information;

wherein the audio encoder is configured to selectively include bandwidth extension information into the encoded audio information in a signal-adaptive manner;

wherein the audio encoder comprises a detector configured to determine a spectral tilt of portions of the input audio information, and to identify portions of the input audio information in dependence on whether the determined spectral tilt is larger than or equal to a fixed or variable tilt threshold value; and

wherein the audio encoder is configured to selectively include bandwidth extension information into the encoded audio information for portions of the input audio information identified by the detector.

32. An audio decoder for providing a decoded audio information on the basis of an encoded audio information, the audio decoder comprising:

a low frequency decoder configured to decode an encoded representation of a low frequency portion to obtain a decoded representation of the low frequency portion; and

a bandwidth extension configured to obtain a bandwidth extension signal using a blind bandwidth extension for portions of an audio content for which no bandwidth extension parameters are included in the encoded audio information, and to obtain the bandwidth extension signal using a parameter-guided bandwidth extension for portions of the audio content for which bandwidth extension parameters are included in the encoded audio information;

wherein the bandwidth extension is configured to perform a smoothing of energies of the bandwidth extension signal when switching from blind bandwidth extension to parameter-guided bandwidth extension and/or when switching from parameter-guided bandwidth extension to blind bandwidth extension;

wherein the bandwidth extension is configured to dampen a high frequency portion of the bandwidth extension signal for a portion of the audio content to which a parameter guided bandwidth extension is applied following a portion of the audio content to which a blind bandwidth extension is applied; and

wherein the bandwidth extension is configured to reduce a damping or to increase a level for a high frequency portion of the bandwidth extension signal for a portion of the audio content to which a blind bandwidth extension is applied following a portion of the audio content to which a parameter guided bandwidth extension is applied.

33. A method for providing an encoded audio information on the basis of an input audio information, the method comprising:

encoding a low frequency portion of the input audio information to obtain an encoded representation of the low frequency portion; and

providing bandwidth extension information on the basis of the input audio information;

wherein bandwidth extension information is selectively included into the encoded audio information in a signal-adaptive manner;

wherein the method comprises identifying portions of the input audio information in dependence on whether a difference between a spectral envelope of a low frequency portion and a spectral envelope of a high frequency portion is larger than or equal to a predetermined difference measure; and

wherein the method comprises selectively including bandwidth extension information into the encoded audio information for identified portions of the input audio information.

34. A method for providing an encoded audio information on the basis of an input audio information, the method comprising:

encoding a low frequency portion of the input audio information to obtain an encoded representation of the low frequency portion; and

providing bandwidth extension information on the basis of the input audio information;

wherein bandwidth extension information is selectively included into the encoded audio information in a signal-adaptive manner;

wherein the method comprises determining a spectral tilt of portions of the input audio information, and identifying portions of the input audio information in dependence on whether the determined spectral tilt is larger than or equal to a fixed or variable tilt threshold value; and

wherein the method comprises selectively including bandwidth extension information into the encoded audio information for identified portions of the input audio information.

35. A method for providing a decoded audio information on the basis of an encoded audio information, the method comprising:

decoding an encoded representation of a low frequency portion to obtain a decoded representation of the low frequency portion; and

obtaining a bandwidth extension signal using a blind bandwidth extension for portions of an audio content for which no bandwidth extension parameters are included in the encoded audio information, and

obtaining the bandwidth extension signal using a parameter-guided bandwidth extension for portions of the audio content for which bandwidth extension parameters are included in the encoded audio information;

wherein the method comprises performing a smoothing of energies of the bandwidth extension signal when switching from blind bandwidth extension to parameter-guided bandwidth extension and/or when switching from parameter-guided bandwidth extension to blind bandwidth extension;

wherein the method comprises dampening a high frequency portion of the bandwidth extension signal for a portion of the audio content to which a parameter guided bandwidth extension is applied following a portion of the audio content to which a blind bandwidth extension is applied; and

wherein the method comprises reducing a damping or increasing a level for a high frequency portion of the bandwidth extension signal for a portion of the audio content to which a blind bandwidth extension is applied following a portion of the audio content to which a parameter guided bandwidth extension is applied.

36. A computer program for performing the method according to claim 33 or claim 34 or claim 35 when the computer program runs on a computer.