Claims

1. An apparatus for decoding an audio signal, comprising:

a receiving interface ~~(110)~~, wherein the receiving interface ~~(110)~~ is configured to receive a first frame comprising a first audio signal portion of the audio signal, and wherein the receiving interface ~~(110)~~ is configured to receive a second frame comprising a second audio signal portion of the audio signal,

a noise level tracing unit ~~(130)~~, wherein the noise level tracing unit ~~(130)~~ is configured to determine noise level information depending on at least one of the first audio signal portion and the second audio signal portion, wherein the noise level information is represented in a tracing domain,

a first reconstruction unit ~~(140)~~ for reconstructing, in a first reconstruction domain, a third audio signal portion of the audio signal depending on the noise level information, if a third frame of the plurality of frames is not received by the receiving interface ~~(110)~~ or if said third frame is received by the receiving interface ~~(110)~~ but is corrupted, wherein the first reconstruction domain is different from or equal to the tracing domain,

a transform unit ~~(121)~~ for transforming the noise level information from the tracing domain to a second reconstruction domain, if a fourth frame of the plurality of frames is not received by the receiving interface ~~(110)~~ or if said fourth frame is received by the receiving interface ~~(110)~~ but is corrupted, wherein the second reconstruction domain is different from the tracing domain, and wherein the second reconstruction domain is different from the first reconstruction domain, and

a second reconstruction unit ~~(141)~~ for reconstructing, in the second reconstruction domain, a fourth audio signal portion of the audio signal depending on the noise level information being represented in the second reconstruction domain, if said fourth frame of the plurality of frames is not received by the receiving interface ~~(110)~~ or if said fourth frame is received by the receiving interface ~~(110)~~ but is corrupted.

2. An apparatus according to claim 1,

wherein the tracing domain is a time domain, a spectral domain, an FFT domain, an MDCT domain, or an excitation domain,

wherein the first reconstruction domain is the time domain, the spectral domain, the FFT domain, the MDCT domain, or the excitation domain, and

wherein the second reconstruction domain is the time domain, the spectral domain, the FFT domain, the MDCT domain, or the excitation domain, but not the same domain as the first reconstruction domain.

3. An apparatus according to claim 2, wherein the tracing domain is the FFT domain, wherein the first reconstruction domain is the time domain, and wherein the second reconstruction domain is the excitation domain.

4. An apparatus according to claim 2, wherein the tracing domain is the time domain, wherein the first reconstruction domain is the time domain, and wherein the second reconstruction domain is the excitation domain.

5. An apparatus according to one of the preceding claims,

wherein said first audio signal portion is represented in the first input domain, and wherein the second audio signal portion is represented is a second input domain,

wherein the transform unit ~~(121)~~ is a second transform unit ~~(121)~~,

wherein the apparatus further comprises a first transform unit ~~(120)~~ for transforming the second audio signal portion or a value or signal derived from the second audio signal portion from the second input domain to the tracing domain to obtain a second signal portion information,

wherein the noise level tracing unit is configured to receive a first signal portion information being represented in the tracing domain, wherein the first signal portion information depends on the first audio signal portion, wherein the noise level tracing unit ~~(130)~~ is configured to receive the second signal portion being represented in the tracing domain, and wherein the noise level tracing unit ~~(130)~~ is configured to the determine the noise level information depending on the first signal portion information being represented in the tracing domain and depending on the second signal portion information being represented in the tracing domain.

6. An apparatus according to claim 5, wherein the first input domain is an excitation domain, and wherein the second input domain is an MDCT domain.

7. An apparatus according to claim 5, wherein the first input domain is an MDCT domain, and wherein the second input domain is the MDCT domain.

8. An apparatus according to one of the preceding claims,

wherein the first reconstruction unit ~~(140)~~ is configured to reconstruct the third audio signal portion by conducting a first fading to a noise like spectrum,

wherein the second reconstruction unit ~~(141)~~ is configured to reconstruct the fourth audio signal portion by conducting a second fading to a noise like spectrum and/or a second fading of an LTP gain, and

wherein the first reconstruction unit ~~(140)~~ and the second reconstruction unit ~~(141)~~ are configured to conduct the first fading and the second fading to a noise like spectrum and/or a second fading of an LTP gain with the same fading speed.

9. An apparatus according to one of claims 5 to 8,

wherein the apparatus further comprises a first aggregation unit ~~(150)~~ for determining a first aggregated value depending on the first audio signal portion,

wherein the apparatus further comprises a second aggregation unit ~~(160)~~ for determining, depending on the second audio signal portion, a second aggregated value as the value derived from the second audio signal portion,

wherein the noise level tracing unit ~~(130)~~ is configured to receive the first aggregated value as the first signal portion information being represented in the tracing domain, wherein the noise level tracing unit ~~(130)~~ is configured to receive the second aggregated value as the second signal portion information being represented in the tracing domain, and wherein the noise level tracing unit ~~(130)~~ is configured to determine the noise level information depending on the first aggregated value being represented in the tracing domain and depending on the second aggregated value being represented in the tracing domain.

10. An apparatus according to claim 9,

wherein the first aggregation unit ~~(150)~~ is configured to determine the first aggregated value such that the first aggregated value indicates a root mean square of the first audio signal portion or of a signal derived from the first audio signal portion, and

wherein the second aggregation unit ~~(160)~~ is configured to determine the second aggregated value such that the second aggregated value indicates a root mean square of the second audio signal portion or of a signal derived from the second audio signal portion.

11. An apparatus according to one of claims 8 to 10, wherein the first transform unit ~~(120)~~ is configured to transform the value derived from the second audio signal portion from the second input domain to the tracing domain by applying a gain value on the value derived from the second audio signal portion.

12. An apparatus according to claim 11,

wherein the gain value indicates a gain introduced by Linear predictive coding synthesis, or

wherein the gain value indicates a gain introduced by Linear predictive coding synthesis and deemphasis.

13. An apparatus according to one of the preceding claims, wherein the noise level tracing unit ~~(130)~~ is configured to determine the noise level information by applying a minimum statistics approach.

14. An apparatus according to one of the preceding claims,

wherein the noise level tracing unit ~~(130)~~ is configured to determine a comfort noise level as the noise level information, and

wherein the reconstruction unit ~~(140)~~ is configured to reconstruct the third audio signal portion depending on the noise level information, if said third frame of the plurality of frames is not received by the receiving interface ~~(110)~~ or if said third frame is received by the receiving interface ~~(110)~~ but is corrupted.

15. An apparatus according to claim 13,

wherein the noise level tracing unit ~~(130)~~ is configured to determine a comfort noise level as the noise level information derived from a noise level spectrum, wherein said noise level spectrum is obtained by applying the minimum statistics approach, and

wherein the reconstruction unit ~~(140)~~ is configured to reconstruct the third audio signal portion depending on a plurality of Linear Predictive coefficients, if said third frame of the plurality of frames is not received by the receiving interface ~~(110)~~ or if said third frame is received by the receiving interface ~~(110)~~ but is corrupted.

16. An apparatus according to one of the preceding claims, wherein the first reconstruction unit ~~(140)~~ is configured to reconstruct the third audio signal portion depending on the noise level information and depending on the first or the second audio signal portion, if said third frame of the plurality of frames is not received by the receiving interface ~~(140)~~ or if said third frame is received by the receiving interface ~~(140)~~ but is corrupted.

17. An apparatus according to claim 16, wherein the first reconstruction unit ~~(140)~~ is configured to reconstruct the third audio signal portion by attenuating or amplifying a signal derived from the first or the second audio signal portion.

18. An apparatus according to one of the preceding claims, wherein the second reconstruction unit ~~(141)~~ is configured to reconstruct the fourth audio signal portion depending on the noise level information and depending on the second audio signal portion.

19. An apparatus according to claim 18, wherein the second reconstruction unit ~~(141)~~ is configured to reconstruct the fourth audio signal portion by attenuating or amplifying a signal derived from the first or the second audio signal portion.

20. An apparatus according to one of the preceding claims,

wherein the apparatus further comprises a long-term prediction unit ~~(170)~~ comprising a delay buffer ~~(180)~~,

wherein the long-term prediction unit ~~(170)~~ is configured to generate a processed signal depending on the first or the second audio signal portion, depending on a delay buffer input being stored in the delay buffer ~~(180)~~ and depending on a long-term prediction gain, and

wherein the long-term prediction unit ~~(170)~~ is configured to fade the long-term prediction gain towards zero, if said third frame of the plurality of frames is not received by the receiving interface ~~(110)~~ or if said third frame is received by the receiving interface ~~(110)~~ but is corrupted.

21. An apparatus according to claim 20, wherein the long-term prediction unit ~~(170)~~ is configured to fade the long-term prediction gain towards zero, wherein a speed with which the long-term prediction gain is faded towards zero depends on a fade-out factor.

22. An apparatus according to claim 20 or 21, wherein the long-term prediction unit ~~(170)~~ is configured to update the delay buffer ~~(180)~~ input by storing the generated processed signal in the delay buffer ~~(180)~~, if said third frame of the plurality of frames is not received by the receiving interface ~~(110)~~ or if said third frame is received by the receiving interface ~~(110)~~ but is corrupted.

23. A method for decoding an audio signal, comprising:

receiving a first frame comprising a first audio signal portion of the audio signal, and receiving a second frame comprising a second audio signal portion of the audio signal,

determining noise level information depending on at least one of the first audio signal portion and the second audio signal portion, wherein the noise level information is represented in a tracing domain,

reconstructing, in a first reconstruction domain, a third audio signal portion of the audio signal depending on the noise level information, if a third frame of the plurality of frames is not received or if said third frame is received but is corrupted, wherein the first reconstruction domain is different from or equal to the tracing domain,

transforming the noise level information from the tracing domain to a second reconstruction domain, if a fourth frame of the plurality of frames is not received or if said fourth frame is received but is corrupted, wherein the second reconstruction domain is different from the tracing domain, and wherein the second reconstruction domain is different from the first reconstruction domain, and

reconstructing, in the second reconstruction domain, a fourth audio signal portion of the audio signal depending on the noise level information being represented in the second reconstruction domain, if said fourth frame of the plurality of frames is not received or if said fourth frame is received but is corrupted.

24. A computer program for implementing the method of claim 23 when being executed on a computer or signal processor.