CLAIMS

1. An encoder ~~(1)~~ for coding speech-like content and/or general audio content ~~(2)~~,

wherein the encoder ~~(1)~~ is configured to embed, at least in some frames ~~(8)~~, parameters ~~(6)~~ in a bitstream ~~(5)~~, which parameters ~~(6)~~ provide for a guided concealment in case an original frame ~~(4)~~ is lost, corrupted or delayed,

wherein the encoder ~~(1)~~ is configured to create a primary frame ~~(4)~~ and a partial copy ~~(8)~~, wherein the partial copy ~~(8)~~ is not a low bitrate version of the primary frame ~~(4)~~ but wherein the partial copy ~~(8)~~ contains the parameters ~~(6).~~, and wherein the partial copy is transmitted in-band as part of the codec payload,

wherein the encoder ~~(1)~~ is configured to choose between multiple partial copy modes which use different amounts of information and/or different parameter sets ~~(6)~~, wherein the selection of the partial copy mode is based on parameters,

and wherein at least one of the multiple partial copy modes is a frequency domain concealment mode, and at least two of the multiple partial copy modes are different time domain concealment modes.

2. The encoder according to claim 1, wherein the encoder ~~(1)~~ is configured to delay the parameters ~~(6)~~ by some time and to embed the parameters ~~(6)~~ in a packet ~~(9)~~ which is encoded and sent later in time.

3. The encoder according to claim 1 or 2, wherein the encoder ~~(1)~~ is configured to reduce a primary frame bitrate, wherein the primary frame bitrate reduction and a partial copy frame coding mechanism together determine a bitrate allocation between the primary frames ~~(4)~~ and the partial copy frames ~~(8)~~ to be included within a constant total bitrate.

4. The encoder according to one of claims 1 to 3, wherein the encoder ~~(1)~~ is configured to create a primary frame ~~(4)~~ of one of the speech-like content type and the general audio content type in combination with a partial copy ~~(8)~~ of the other one of the speech-like content type and the general audio content type.

5. The encoder according to one of the preceding claims, wherein the encoder ~~(1)~~ is part of a codec using a TCX coding scheme.

6. The encoder according to claim 5, wherein the encoder ~~(1)~~ is configured to detect whether the frame contains a noisy audio signal or whether the frame contains a noise floor with sharp spectral lines that are stationary over a period of time, and to embed, based on the detection, the parameters ~~(6)~~ into a TCX frame.

7. The encoder according to one of claims 5 or 6, wherein the parameters ~~(6)~~ comprise ISF or LSF parameters, in particular predictively coded ISF or LSF parameters.

8. The encoder according to one of claims 5 to 7, wherein the parameters ~~(6)~~ comprise signal classification parameters.

9. The encoder according to one of claims 5 to 8, wherein the parameters ~~(6)~~ comprise a TCX global gain or a TCX global level.

10. The encoder according to one of claims 5 to 9, wherein the parameters ~~(6)~~ comprise at least one of a window information and a spectral peak position.

11. The encoder according to claims 1 to 4, wherein the encoder ~~(1)~~ is part of a switched codec, wherein the switched codec consists of at least two core coding schemes, wherein a first core coding scheme uses ACELP and a second core coding scheme uses TCX.

12. The encoder according to claim 11, wherein the encoder ~~(1)~~ is configured to not put a partial copy ~~(8)~~ on top of a TCX frame ~~(4)~~ after a switch when there is a first TCX frame after an ACELP frame.

13. The encoder according to one of claims 5 to 12, wherein the encoder ~~(1)~~ is configured to analyze the signal before encoding and to turn off the partial copy usage or to provide a reduced partial copy ~~(8)~~ based on the analyzed signal.

14. The encoder according to one of the preceding claims, wherein one of the at least two time domain concealment modes is selected if a frame contains a transient or if a global gain of the frame is lower than a global gain of a previous frame.

15. The encoder according to one of the preceding claims, wherein the encoder ~~(1)~~ is configured to send a LTP lag if LTP data is present.

16. The encoder according to one of the preceding claims, wherein the encoder ~~(1)~~ is configured to send a classifier information.

17. The encoder according to one of the preceding claims, wherein the encoder ~~(1)~~ is configured to send at least one of LPC parameters, LTP Gain, Noise Level and Pulse Position.

18. A decoder ~~(31)~~ for decoding speech-like content and/or general audio content ~~(2)~~,

wherein the decoder ~~(31)~~ is configured to use parameters ~~(6)~~ which are sent later in time in the bitstream ~~(5)~~ to provide for a guided concealment in case an original frame ~~(4)~~ is lost, corrupted or delayed, wherein the decoder ~~(31)~~ is configured to receive a primary frame ~~(4)~~ and a partial copy ~~(8)~~, wherein the partial copy ~~(8)~~ is not a low bitrate version of the primary frame ~~(4)~~ but wherein the partial copy ~~(8)~~ contains the parameters ~~(6).~~, and wherein the partial copy ~~(8)~~ is transmitted in-band as part of the codec payload,

wherein the decoder ~~(31)~~ is configured to choose between multiple partial copy modes which use different amounts of information and/or different parameter sets ~~(6)~~,

and wherein at least one of the multiple partial copy modes is a frequency domain concealment mode, and at least two of the multiple partial copy modes are different time domain concealment modes.

19. The decoder according to claim 18, wherein the decoder ~~(31)~~ is configured to directly use the parameters ~~(6)~~, which are available from the bitstream ~~(5)~~, for the guided concealment.

20. The decoder ~~(31)~~ according to one of claims 18 or 19, wherein the parameters ~~(6)~~ are contained in a partial copy ~~(8)~~, and wherein the decoder ~~(31)~~ is configured to receive from a de-jitter buffer the partial copy ~~(8b)~~ of a currently lost frame ~~(4b)~~ if it is available.

21. The decoder according to one of claims 18 to 20, wherein the decoder ~~(31)~~ is configured to receive a primary frame ~~(4)~~ of one of the speech-like content type and the general audio content type in combination with a partial copy ~~(8)~~ of the other one of the speech-like content type and the general audio content type

22. The decoder according to one of claims 18 to 21, wherein the decoder ~~(31)~~ is part of a codec using a TCX codec scheme.

23. The decoder according to one of claims 18 to 22, wherein the parameters ~~(6)~~ comprise ISF or LSF parameters, in particular predictively coded ISF or LSF parameters.

24. The decoder according to one of claims 18 to 23, wherein the parameters ~~(6)~~ comprise signal classification parameters.

25. The decoder according to one of claims 18 to 24, wherein the parameters ~~(6)~~ comprise a TCX global gain or a TCX global level.

26. The decoder according to one of claims 18 to 25, wherein the parameters ~~(6)~~ comprise at least one of a window information and a spectral peak position.

27. The decoder according to claims 18 to 26, wherein the decoder ~~(31)~~ is part of a switched codec, wherein the switched codec consists of at least two core coding schemes, wherein a first core coding scheme uses ACELP and a second core coding scheme uses TCX.

28. The decoder according to claim 27, wherein the decoder ~~(31)~~ is configured to use, after a switch, ACELP concealment in the case that a first TCX frame after an ACELP frame is not available to the decoder ~~(31)~~.

29. The decoder according to one of claims 18 to 28, wherein the decoder ~~(31)~~ is configured to receive a LTP lag if LTP data is present.

30. The decoder according to one of claims 18 to 29, wherein the decoder ~~(31)~~ is configured to receive a classifier information.

31. The decoder according to one of claims 18 to 30, wherein the decoder ~~(31)~~ is configured to receive at least one of LPC parameters, LTP Gain, Noise Level and Pulse Position.

32. The decoder according to one of claims 18 to 31, wherein the decoder ~~(31)~~ is configured to decrease a pitch gain and a code gain with two different factors in dependence on a concealment mode.

33. The decoder according to claim 32, wherein a first factor is 0.4 and a second factor is 0.7.

34. The decoder according to one of claims 18 to 33, wherein the decoder ~~(31)~~ is configured to not take into account a pitch decoded from the partial copy ~~(8b)~~ if the previous primary frame ~~(4a)~~ is lost, and wherein the decoder ~~(31)~~ is configured to fix

the pitch to a predicted pitch for the following lost primary frame instead of using the pitch transmitted.

35. A system comprising an encoder ~~(1)~~ according to one of claims 1 to 17 and a decoder ~~(31)~~ according to one of claims 18 to 34.

36. A method for encoding speech-like content and/or general audio content ~~(2)~~, the method comprising the step of:

embedding, at least in some frames ~~(8)~~, parameters ~~(6)~~ in a bitstream ~~(5)~~, which parameters ~~(6)~~ provide for a guided concealment in case an original frame ~~(4)~~ is lost, corrupted or delayed,

creating a primary frame ~~(4)~~ and a partial copy ~~(8)~~, wherein the partial copy ~~(8)~~ is not a low bitrate version of the primary frame ~~(4)~~ but wherein the partial copy ~~(8)~~ contains the parameters ~~(6)~~, and transmitting the partial copy ~~(8)~~ in-band as part of the codec payload,

and choosing between multiple partial copy modes which use different amounts of information and/or different parameter sets ~~(6)~~,

wherein at least one of the multiple partial copy modes is a frequency domain concealment mode, and at least two of the multiple partial copy modes are different time domain concealment modes.

37. A method for decoding speech-like content and/or general audio content, the method comprising the step of:

using parameters ~~(6)~~ which are sent later in time in the bitstream ~~(5)~~ to provide for a guided concealment in case an original frame ~~(4)~~ is lost, corrupted or delayed,

receiving a primary frame ~~(4)~~ and a partial copy ~~(8)~~, wherein the partial copy ~~(8)~~ is not a low bitrate version of the primary frame ~~(4)~~ but wherein the partial copy ~~(8)~~ contains the parameters ~~(6)~~, and wherein the partial copy ~~(8)~~ is transmitted in-band as part of the codec payload,

and choosing between multiple partial copy modes which use different amounts of information and/or different parameter sets ~~(6)~~,

wherein at least one of the multiple partial copy modes is a frequency domain concealment mode, and at least two of the multiple partial copy modes are different time domain concealment modes

38. A computer program for implementing the method of one of claims 36 or 37 when being executed on a computer or signal processor.

39. An encoder ~~(1)~~ for coding audio content ~~(2)~~, wherein the encoder ~~(1)~~ is configured to

provide a primary encoded representation ~~(4)~~ of a current frame and an encoded representation ~~(8)~~ of at least one error concealment parameter ~~(6)~~ for providing a decoder-sided guided error concealment of the current frame, wherein the encoded representation ~~(8)~~ of the at least one error concealment parameter ~~(6)~~ is transmitted in-band as part of the codec payload, wherein

the encoder ~~(1)~~ is configured to select the at least one error concealment parameter ~~(6)~~ based on one or more parameters representing a signal characteristic of the audio content ~~(2)~~ contained in the current frame,

wherein the encoder ~~(1)~~ is configured to selectively choose between at least two modes for providing an encoded representation ~~(8)~~ of the at least one error concealment parameter ~~(6)~~.

wherein at least one of the modes for providing an encoded representation ~~(8)~~ of the at least one error concealment parameter ~~(6)~~ is a time domain concealment mode such that the encoded representation ~~(8)~~ of the at least one error concealment parameter ~~(6)~~ comprises one or more of a TCX LTP lag and a classifier information,

and wherein at least one of the modes for providing an encoded representation ~~(8)~~ of the at least one error concealment parameter ~~(6)~~ is a frequency domain concealment mode such that the encoded representation ~~(8)~~ of the at least one error concealment parameter ~~(6)~~ comprises one or more of an LSF parameter, a TCX global gain and a classifier information.

40. An encoder ~~(1)~~ for coding audio content ~~(2)~~, wherein the encoder ~~(1)~~ is configured to

provide a primary encoded representation ~~(4)~~ of a current frame and an encoded representation ~~(8)~~ of at least one error concealment parameter ~~(6)~~ for providing a decoder-sided guided error concealment of the current frame, wherein the encoded representation ~~(8)~~ of the at least one error concealment parameter ~~(6)~~ is transmitted in-band as part of the codec payload, wherein

the encoder ~~(1)~~ is configured to select the at least one error concealment parameter ~~(6)~~ based on one or more parameters representing a signal characteristic of the audio content ~~(2)~~ contained in the current frame,

wherein the encoder ~~(1)~~ is configured to selectively choose between at least two modes for providing an encoded representation ~~(8)~~ of the at least one error concealment parameter ~~(6)~~,

wherein at least one of the modes for providing an encoded representation ~~(8)~~ of the at least one error concealment parameter ~~(6)~~ is a time domain concealment mode that is selected if the audio content ~~(2)~~ contained in the current frame contains a transient or if the global gain of the audio content ~~(2)~~ contained in the current frame is lower than the global gain of the preceding frame

and wherein at least one of the modes for providing an encoded representation ~~(8)~~ of the at least one error concealment parameter ~~(6)~~ is a frequency domain concealment mode such that the encoded representation ~~(8)~~ of the at least one error concealment parameter ~~(6)~~ comprises one or more of an LSF parameter, a TCX global gain and a classifier information.

41. The encoder ~~(1)~~ according to claim 39 or 40, wherein the decoder-sided error concealment is an extrapolation-based error concealment.

42. The encoder according to one of claims 39 to 41, wherein the encoder ~~(1)~~ is configured to combine the encoded representation ~~(8b)~~ of the at least one error concealment parameter ~~(6)~~ of the current frame with a primary encoded representation ~~(4c)~~ of a future frame into a transport packet ~~(9)~~ such that the encoded representation ~~(8b)~~ of the at least one error concealment parameter ~~(6)~~ of the current frame is sent with a time delay relative to the primary encoded representation ~~(4b)~~ of the current frame.

43. The encoder according to one of claims 39 to 42, wherein the selection of a mode for providing an encoded representation ~~(8)~~ of the at least one error concealment parameter ~~(6)~~ is based on parameters which comprise at least one of a frame class, a LTP pitch, a LTP gain and a mode for providing an encoded representation ~~(8)~~ of the at least one error concealment parameter ~~(6)~~ of one or more preceding frames.

44. The encoder according to one of claims 39 to 43, wherein the encoder ~~(1)~~ uses at least a TCX coding scheme.

45. A decoder ~~(31)~~ for decoding audio content ~~(2)~~, wherein the decoder ~~(31)~~ is configured to

receive a primary encoded representation ~~(4)~~ of a current frame and/or an encoded representation ~~(8)~~ of at least one error concealment parameter ~~(6)~~ for providing a decoder-sided guided error concealment of the current frame, wherein the encoded representation ~~(8)~~ of the at least one error concealment parameter ~~(6)~~ is transmitted in-band as part of the codec payload, wherein

the decoder ~~(31)~~ is configured to use the guided error concealment for at least partly reconstructing the audio content ~~(2)~~ of the current frame by using the at least one error concealment parameter ~~(6)~~ in the case that the primary encoded representation ~~(4)~~ of the current frame is lost, corrupted or delayed,

wherein the decoder ~~(31)~~ is configured to selectively choose between at least two error concealment modes which use different encoded representations ~~(8)~~ of one or more error concealment parameters ~~(6)~~ for at least partially reconstructing the audio content ~~(2)~~ using the guided error concealment,

wherein at least one of the at least two error concealment modes which uses different encoded representations ~~(8)~~ of one or more error concealment parameters ~~(6)~~ is a time domain concealment mode wherein the encoded representation ~~(8)~~ of the at least one error concealment parameter ~~(6)~~ comprises at least one of a TCX LTP lag and a classifier information,

and wherein at least one of the at least two error concealment modes which uses different encoded representations ~~(8)~~ of one or more error concealment parameters ~~(6)~~ is a frequency domain concealment mode wherein the encoded representation ~~(8)~~ of the at least one error concealment parameter ~~(6)~~ comprises one or more of an LSF parameter, a TCX global gain and a classifier information.

46. The decoder ~~(31)~~ according to claim 45, wherein the decoder-sided guided error concealment is an extrapolation-based error concealment.

47. The decoder according to claim 45 or 46, wherein the decoder (31) is configured to extract the error concealment parameter (6) of a current frame from a packet (9b) that is separated from a packet (9a) in which the primary encoded representation (4) of the current frame is contained.

48. The decoder according to one of claims 45 to 47, wherein the decoder ~~(31)~~ uses at least a TCX coding scheme.

49. A system comprising the encoder of claims 39 to 44 and the decoder of claims 45 to 48.

50. A method for encoding audio content comprising the steps of:

providing a primary encoded representation of a current frame and an encoded representation of at least one error concealment parameter for providing a decoder-sided guided error concealment of the current frame, and transmitting the encoded representation of the at least one error concealment parameter in-band as part of the codec payload,

selecting the at least one error concealment parameter based on one or more parameters representing a signal characteristic of the audio content contained in the current frame,

and selectively choosing between at least two modes for providing an encoded representation of the at least one error concealment parameter,

wherein at least one of the modes for providing an encoded representation of the at least one error concealment parameter is a time domain concealment mode such that the encoded representation of the at least one error concealment parameter comprises one or more of a TCX LTP lag and a classifier information,

and wherein at least one of the modes for providing an encoded representation of the at least one error concealment parameter is a frequency domain concealment mode such that the encoded representation of the at least one error concealment parameter comprises one or more of an LSF parameter, a TCX global gain and a classifier information.

51. A method for encoding audio content comprising the steps of:

providing a primary encoded representation of a current frame and an encoded representation of at least one error concealment parameter for providing a decoder-sided guided error concealment of the current frame, and transmitting the encoded representation of the at least one error concealment parameter in-band as part of the codec payload, wherein

selecting the at least one error concealment parameter based on one or more parameters representing a signal characteristic of the audio content contained in the current frame,

and selectively choosing between at least two modes for providing an encoded representation of the at least one error concealment parameter,

wherein at least one of the modes for providing an encoded representation of the at least one error concealment parameter is a time domain concealment mode that is selected if the audio content contained in the current frame contains a transient or if the global gain of the audio content contained in the current frame is lower than the global gain of the preceding frame

and wherein at least one of the modes for providing an encoded representation of the at least one error concealment parameter is a frequency domain concealment mode such that the encoded representation of the at least one error concealment parameter comprises one or more of an LSF parameter, a TCX global gain and a classifier information.

52. A method for decoding audio content comprising the steps of:

receiving a primary encoded representation of a current frame and/or an encoded representation of at least one error concealment parameter for providing a decoder-sided guided error concealment of the current frame, wherein the encoded representation of the at least one error concealment parameter is transmitted in-band as part of the codec payload, wherein

using, at the decoder-side, the guided error concealment for at least partly reconstructing the audio content of the current frame by using the at least one error concealment parameter in the case that the primary encoded representation of the current frame is lost, corrupted or delayed,

and selectively choosing between at least two error concealment modes which use different encoded representations of one or more error concealment parameters for at least partially reconstructing the audio content using the guided error concealment,

wherein at least one of the at least two error concealment modes which uses different encoded representations of one or more error concealment parameters is a time domain concealment mode wherein the encoded representation of the at least one error concealment parameter comprises at least one of a TCX LTP lag and a classifier information,

and wherein at least one of the at least two error concealment modes which uses different encoded representations of one or more error concealment parameters is a frequency domain concealment mode wherein the encoded representation of the at least one error concealment parameter comprises one or more of an LSF parameter, a TCX global gain and a classifier information.

53. A computer program for implementing the method of one of claims 50, 51 or 52 when being executed on a computer or signal processor.