Claims

1. Apparatus for processing an encoded audio signal, said encoded audio signal comprising a sequence of access units, each access unit comprising a core signal with a first spectral width and parameters describing a spectrum above the first spectral width, said apparatus comprising:

a demultiplexer for generating, from an access unit of the encoded audio signal, said core signal and a set of said parameters,

an upsampler for upsampling said core signal of said access unit and outputting a first upsampled spectrum and a timely consecutive second upsampled spectrum, the first upsampled spectrum and the second upsampled spectrum, both, having a same audio content as the core signal and having a second spectral width being greater than the first spectral width of the core signal,

a parameter converter for converting parameters of said set of parameters of said access unit to obtain converted parameters being applicable to the first upsampled spectrum and the second upsampled spectrum, and

a spectral gap filling processor for processing said first upsampled spectrum and said second upsampled spectrum using said converted parameters.

2. Apparatus of claim 1, wherein said upsampler is configured to fill an upper part of a spectrum of said core signal with zeroes and to derive the first upsampled spectrum and the second upsampled spectrum from the filled-up spectrum of the core signal.

3. Apparatus of claim 1 or 2, wherein said upsampler is configured for upsampling said core signal of said access unit additionally using a core signal of an access unit directly preceding said access unit.

4. Apparatus of any of claims 1 to 3, wherein said upsampler is configured for collecting core signals of a first number of timely consecutive access units and processing from these core signals a second number of upsampled spectra for a non-

integer upsampling ratio, wherein the first number is a denominator of the ratio and the second number is a nominator of the ratio.

5. Apparatus of any of claims 1 to 4,

wherein said parameter converter is configured for converting a first subset of parameters of said set of parameters referring to a first part of timely consecutive timeslots to obtain a first converted subset of parameters and for converting a second subset of parameters of said set of parameters referring to a second part of said timeslots timely consecutive to said first part of timeslots to obtain a second converted subset of parameters, and

wherein said spectral gap filling processor is configured to process the first converted subset of parameters with the first upsampled spectrum and to process the second converted subset of parameters with the second upsampled spectrum.

6. Apparatus of any of claims 1 to 5, wherein said parameter converter is configured for converting parameters referring to energy values of said set of parameters into energy values usable by the spectral gap filling processor by scaling these parameter values with a given scale factor.

7. Apparatus of claim 6,

wherein said parameter converter is configured for extracting an information about a window function associated with the access unit, and

wherein said parameter converter is configured to adapt the scale factor according to the window function.

8. Apparatus of any of claims 1 to 7, wherein said parameter converter is configured for shifting parameters of said set of parameters by inserting a delay compensation.

9. Apparatus of any of claims 1 to 8, wherein said upsampler is configured for upsampling said core signal by interpolating values of said core signal.

10. Apparatus of any of claims 1 to 9,

wherein said upsampler is configured to fill an upper part of a spectrum of the core signal of a preceding access unit with zeros,

wherein said upsampler is configured to fill up an upper part of a spectrum of the core signal of the access unit with zeros,

wherein said upsampler is configured to perform a spectrum-to-time transform of the filled up spectrum of the access unit and of the filled up spectrum of the preceding access unit, and

wherein said upsampler is configured to perform an overlap-add of a time domain signal for the filled up spectrum of the preceding access unit and of a time domain signal for the filled up spectrum of the access unit, to obtain an intermediate time signal.

11. Apparatus of claim 10,

wherein said upsampler is configured to perform a time-to-spectrum transform with a first portion of the intermediate time signal to obtain the first upsampled spectrum, and

wherein said upsampler is configured to perform a time-to-spectrum with a second portion of the intermediate time signal to obtain the second upsampled spectrum, and

wherein the first portion overlaps with the second portion.

12. Apparatus of any of claims 1 to 11,

wherein said upsampler is configured for upsampling said core signal in order to obtain an upsampled core signal,

wherein said upsampler is configured for performing a spectrum-to-time transform on said upsampled core signal in order to obtain a time domain signal,

wherein said upsampler is configured for processing said time domain signal to obtain said first upsampled spectrum and said timely consecutive second upsampled spectrum by applying a time to spectrum transform, and

wherein said spectrum-to-time transform is an inverse transform of the time to spectrum transform.

13. Apparatus of claim 12, wherein said spectrum-to-time transform is an inverse modified discrete cosine transform and wherein said time to spectrum transform is a modified discrete cosine transform.

14. Apparatus of any of claims 1 to 13, wherein said spectral gap filling processor is configured to decode the first upsampled spectrum and the second upsampled spectrum with the converted parameters to obtain a time domain output signal.

15. Apparatus of claim 14, wherein said spectral gap filling processor is configured to apply a first part of the converted parameters to the first upsampled spectrum to obtain a first processed spectrum and to apply a second part of the converted parameters to the second upsampled spectrum to obtain a second processed spectrum.

16. Apparatus of any of claims 1 to 13,

wherein said spectral gap filling processor comprises:

a spectrum converter for converting the first processed spectrum and the second processed spectrum into a time domain, and

an overlap-adder being configured for overlap-adding at least two output time signals in order to obtain an audio signal.

17. Apparatus of any of claims 1 to 16, wherein said spectral gap filling processor is configured for generating a spectral gap filling coded signal having a first access unit and a second access unit, the first access unit comprising a transformed version of the first upsampled spectrum and a first part of the converted parameters

and the second access unit comprising a transformed version of the second upsampled spectrum and a second part of the converted parameters.

18. Apparatus for any of claims 1 to 13, wherein said spectral gap filling processor is configured for generating an output data stream having a first access unit and a second access unit.

19. Apparatus of any of claims 1 to 18,

wherein said spectral gap filling processor is configured for processing said first upsampled spectrum and said second upsampled spectrum with said converted parameters to obtain two transcoded access unit, and

wherein said spectral gap filling processor is configured for adding said two transcoded access units to obtain a transcoded audio signal.

20. Apparatus of claim 19, wherein said transcoded audio signal is an IGF-encoded audio signal.

21. Apparatus of any of claims 1 to 20, wherein said encoded audio signal is a SBR-encoded audio signal.

22. Method for processing an encoded audio signal, said encoded audio signal comprising a sequence of access units, each access unit comprising a core signal with a first spectral width and parameters describing a spectrum above the first spectral width, said method comprising:

generating, from an access unit of the encoded audio signal, said core signal and a set of said parameters,

upsampling said core signal of said access unit and outputting a first upsampled spectrum and a timely consecutive second upsampled spectrum, the first upsampled spectrum and the second upsampled spectrum, both, having a same audio content as the core signal and having a second spectral width being greater than the first spectral width of the core signal,

converting parameters of said set of parameters of said access unit to obtain converted parameters being applicable to the first upsampled spectrum and the second upsampled spectrum, and

processing said first upsampled spectrum and said second upsampled spectrum using said converted parameters.