CLAIMS

1. A device configured to compress higher order ambisonic audio data representative of a soundfield, the device comprising:

a memory configured to store higher order ambisonic coefficients of the higher order ambisonic audio data; and

one or more processors configured to:

decompose (1002) the higher order ambisonic coefficients into a predominant sound component and a corresponding spatial component, the corresponding spatial component representative of directions, shape, and width of the predominant sound component, and defined in a spherical harmonic domain, wherein the spatial component comprises elements;

specify (1006), in a bitstream conforming to an intermediate compression format, a subset of the higher order ambisonic coefficients that represent an ambient component of the soundfield; and

determine that at least one of the elements of the spatial component is redundant with respect to information provided by the subset of the higher order ambisonic coefficients that represent the ambient component of the soundfield; characterised in that the one or more processors are configured to

specify (1008), in the bitstream, and irrespective of the determination that at least one of the elements of the spatial component is redundant, all elements of the spatial component.

2. The device of claim 1, wherein the one or more processors are configured to specify, in the bitstream, the subset of the higher order ambisonic coefficients associated with spherical basis functions having an order from zero through two; or wherein the one or more processors are further configured to specify, in the bitstream and without applying decorrelation to the subset of the higher order ambisonic coefficients, the subset of the higher order ambisonic coefficients.

3. The device of claim 1,

wherein the predominant sound component comprises a first predominant sound component,

wherein the spatial component comprises a first spatial component,

wherein the one or more processors are configured to:

decompose the higher order ambisonic coefficients into a plurality of predominant sound components that include the first predominant sound component and a corresponding plurality of spatial components that include the first spatial component,

specify, in the bitstream, all elements of each of four of the plurality of spatial components, the four of the plurality of spatial components including the first spatial component; and

specify, in the bitstream, four of the plurality of predominant sound components corresponding to the four of the plurality of spatial components.

4. The device of claim 3, wherein the one or more processors are configured to:

specify all elements of each of the four of the plurality of spatial components in a single side information channel of the bitstream;

specify each of the four of the plurality of predominant sound components in a separate foreground channel of the bitstream; and

specify each of the subset of the higher order ambisonic coefficients in a separate ambient channel of the bitstream.

5. The device of claim 1, wherein the intermediate compression format comprises a mezzanine compression format, or wherein the intermediate compression format comprises a mezzanine compression format used for communication of audio data for broadcast networks.

6. The device of claim 1,

wherein the device comprises a microphone array (902) configured to capture spatial audio data, and

wherein the one or more processors are further configured to convert the spatial audio data into the higher order ambisonic audio data.

7. The device of claim 1, wherein the one or more processors are configured to:

receive the higher order ambisonic audio data; and

output the bitstream to an emission encoder (406), the emission encoder configured to transcode the bitstream based on a target bitrate.

8. The device of claim 1, further comprising a microphone configured to capture spatial audio data representative of the higher order ambisonic audio data, and convert the spatial audio data to the higher order ambisonic audio data.

9. The device of claim 1, wherein the device comprises a robotic device or wherein the device comprises a flying device.

10. A method to compress higher order ambisonic audio data representative of a soundfield, the method comprising:

decomposing (1002) higher order ambisonic coefficients representative of a soundfield into a predominant sound component and a corresponding spatial component, the corresponding spatial component representative of directions, shape, and width of the predominant sound component, and defined in a spherical harmonic domain, wherein the spatial component comprises elements;

specifying (1006), in a bitstream conforming to an intermediate compression format, a subset of the higher order ambisonic coefficients that represent an ambient component of the soundfield; and

determining that at least one of the elements of the spatial component is redundant with respect to information provided by the subset of the higher order ambisonic coefficients that represent the ambient component of the soundfield; characterised by

specifying (1008), in the bitstream and irrespective of the determination that at least one of the elements of the spatial component is redundant, all elements of the spatial component.

11. The method of claim 10, wherein specifying the subset of the higher order ambisonic coefficients comprises specifying, in the bitstream, the subset of the higher order ambisonic coefficients associated with spherical basis functions having an order from zero through two; or wherein the method further comprises specifying, in the bitstream and without applying decorrelation to the subset of the higher order ambisonic coefficients, the subset of the higher order ambisonic coefficients.

12. The method of claim 10,

wherein the predominant sound component comprises a first predominant sound component,

wherein the spatial component comprises a first spatial component,

wherein decomposing the higher order ambisonic coefficients comprises decomposing the higher order ambisonic coefficients into a plurality of predominant sound components that include the first predominant sound component and a corresponding plurality of spatial components that include the first spatial component,

wherein specifying all of the elements of the spatial component comprises specifying, in the bitstream, all elements of each of four of the plurality of spatial components, the four of the plurality of spatial components including the first spatial component,

wherein the method further comprises specifying, in the bitstream, four of the plurality of predominant sound components corresponding to the four of the plurality of spatial components,

wherein specifying all of the elements of each of the four of the plurality of spatial components comprises specifying all of the elements of each of the four of the plurality of spatial components in a single side information channel of the bitstream,

wherein specifying the four of the plurality of predominant sound components comprises specifying each of the four of the plurality of predominant sound components in a separate foreground channel of the bitstream, and

wherein specifying the subset of the higher order ambisonic coefficients comprises specifying each of the subset of the higher order ambisonic coefficients in a separate ambient channel of the bitstream.

13. The method of claim 10, wherein the intermediate compression format comprises a mezzanine compression format, or wherein the intermediate compression format comprises a mezzanine compression format used for communication of audio data for broadcast network.

14. The method of claim 10, further comprising:

capturing, by a microphone array, spatial audio data, and converting the spatial audio data into the higher order ambisonic audio data; or

further comprising:

receiving the higher order ambisonic audio data; and

outputting the bitstream to an emission encoder, the emission encoder configured to transcode the bitstream based on a target bitrate,

wherein the device comprises a mobile communication handset; or

further comprising:

capturing spatial audio data representative of the higher order ambisonic audio data; and

converting the spatial audio data to the higher order ambisonic audio data,

wherein the device comprises a flying device.

15. A non-transitory computer-readable storage medium having stored thereon instructions that, when executed, cause one or more processors to perform the method of any of claims 10-14.