CLAIMS

1. A device comprising:

a memory configured to store a plurality of codebooks to use when performing vector dequantization with respect to a vector quantized spatial component of a soundfield, the vector quantized spatial component defined in a spherical harmonic domain, and obtained through application of a decomposition to a plurality of higher order ambisonic coefficients representative of the soundfield; and

one or more processors coupled to the memory, and configured to:

select one of the plurality of codebooks;

perform vector dequantization with respect to the vector quantized spatial component using the selected one of the plurality of codebooks to obtain a vector dequantized spatial component of the soundfield; and

render, based on the vector dequantized spatial component, speaker feeds.

2. The device of claim 1, wherein the one or more processors are further configured to determine a syntax element from a bitstream that includes the vector quantized spatial component, the syntax element identifying the selected one of the plurality of codebooks, and perform the vector dequantization with respect to the vector quantized spatial component based on the selected one of the plurality of codebooks identified by the syntax element.

3. The device of claim 1, wherein the one or more processors are further configured to determine a syntax element from a bitstream that includes the vector quantized spatial component, the syntax element identifying an index into the selected one of the plurality of codebooks having a weight value used when performing the vector dequantization.

4. The device of claim 1,

wherein the one or more processors are further configured to determine a first syntax element and a second syntax element from a bitstream that includes the vector quantized spatial component, wherein the first syntax element identifies the selected one of the plurality of codebooks, and the second syntax element identifies an index into the selected one of the

plurality of codebooks having a weight value used when performing the vector dequantization, and

wherein the one or more processors are configured to perform the vector dequantization with respect to the vector quantized spatial component based on the weight value identified by the first syntax element from the selected one of the plurality of codebooks identified by the second syntax element.

5. The device of claim 1, wherein the one or more processors are further configured to determine a syntax element from a bitstream that includes the vector quantized spatial component, the syntax element identifying an index into a vector dictionary having a code vector used when performing the vector dequantization.

6. The device of claim 1,

wherein the one or more processors are further configured to determine a first syntax element, a second syntax element, and a third syntax element from a bitstream that includes the vector quantized spatial component, wherein the first syntax element identifies the selected one of the plurality of codebooks, the second syntax element identifies an index into the selected one of the plurality of codebooks having a weight value used when performing the vector dequantization, and the third syntax element identifies an index into a vector dictionary having a code vector used when performing the vector dequantization, and

wherein the one or more processors are configured to perform the vector dequantization with respect to the vector quantized spatial component based on the weight value identified by the first syntax element from the selected one of the plurality of codebooks identified by the second syntax element and the code vector identified by the third syntax element.

7. The device of claim 1, wherein the one or more processors are configured to select the one of the plurality of codebooks based on a number of code vectors used when performing the vector dequantization.

8. The device of claim 1, wherein the one or more processors are configured to select the one of the plurality of codebooks having eight weight values when only one code vector is used

when performing the vector dequantization.

9. The device of claim 1, wherein the one or more processors are configured to select the one of the plurality of codebooks having 254 weight values when two to eight code vectors are used when performing the vector dequantization.

10. The device of claim 1, wherein the plurality of codebooks comprises a codebook having 254 rows with 7 weight values in each row and a codebook having 898 rows with a single weight value in each row.

11. A device comprising:

means for storing a plurality of codebooks to use when performing vector dequantization with respect to a vector quantized spatial component of a soundfield, the vector quantized spatial component defined in a spherical harmonic domain, and obtained through application of a decomposition to a plurality of higher order ambisonic coefficients;

means for selecting one of the plurality of codebooks

means for performing vector dequantization with respect to the vector quantized spatial component using the selected one of the plurality of codebooks to obtain a vector dequantized spatial component of the soundfield;

means for rendering, based on the vector dequantized spatial component, speaker feeds.

12. The device of claim 11, further comprising means for determining a syntax element from a bitstream that includes the vector quantized spatial component, the syntax element identifying the selected one of the plurality of codebooks.

13. The device of claim 11, further comprising means for determining a syntax element from a bitstream that includes the vector quantized spatial component, the syntax element identifying the selected one of the plurality of codebooks, and

wherein the means for performing the vector dequantization comprises means for performing the vector dequantization with respect to the vector quantized spatial component based on the selected one of the plurality of codebooks identified by the syntax element.

14. The device of claim 11, further comprising means for determining a syntax element from a bitstream that includes the vector quantized spatial component, the identifying an index into the selected one of the plurality of codebooks having a weight value used when performing the vector dequantization.

15. A device comprising:

a memory configured to store a plurality of codebooks to use when performing vector quantization with respect to a spatial component of a soundfield, the spatial component defined in a spherical harmonic domain, and obtained through application of a decomposition to the plurality of higher order ambisonic coefficients; and

one or more processors coupled to the memory, and configured to:

select one of the plurality of codebooks;

perform vector quantization with respect to the spatial component using the selected one of the plurality of codebooks to obtain a vector quantized spatial component of the soundfield; and

generate a bitstream to include the vector quantized spatial component.

16. The device of claim 15, wherein selecting one of a plurality of codebooks comprises selecting the one of the plurality of codebooks having eight weight values when only one code vector is used when performing the vector quantization.

17. The device of claim 1,

further comprising one or more speakers coupled to the one or more processors, and configured to reproduce the soundfield based on the speaker feeds.

18. The device of claim 1,

wherein the one or more processors are further configured to reconstruct, based on the vector dequantized spatial component, the higher order ambisonic coefficients, and

wherein the one or more processors are configured to render, based on the reconstructed higher order ambisonic coefficients, the speaker feeds.