CLAIMS

1. A method of generating a bitstream representative of multi-channel audio content, the method comprising: specifying, in the bitstream and by one or more processors of an audio encoder, audio rendering information that includes a signal value identifying an audio renderer to be used when generating the multi-channel audio content, wherein the signal value includes a plurality of matrix coefficients that define a matrix used to render spherical harmonic coefficients to a plurality of speaker feeds.

2. The method of claim 1, wherein the signal value includes two or more bits that define an index that indicates that the bitstream includes the matrix used to render the spherical harmonic coefficients to the plurality of speaker feeds.

3. The method of claim 2, wherein the signal value further includes two or more bits that define a number of rows of the matrix included in the bitstream and two or more bits that define a number of columns of the matrix included in the bitstream.

4. The method of claim 1, further comprising specifying a second signal value that specifies a rendering algorithm used to render audio objects or the spherical harmonic coefficients to the plurality of speaker feeds.

5. The method of claim 1, wherein the signal value further includes two or more bits that define an index associated with the matrix of a plurality of matrices used to render audio objects or the spherical harmonic coefficients to the plurality of speaker feeds.

6. The method of claim 1, further comprising specifying a second signal value that includes two or more bits that define an index associated with one of a plurality of rendering algorithms used to render the spherical harmonic coefficients to the plurality of speaker feeds.

7. The method of claim 1, wherein specifying the audio rendering information includes specifying the audio rendering information on a per audio frame basis in the bitstream, a single time in the bitstream or from metadata separate from the bitstream.

8. A device configured to generate a bitstream representative of multi-channel audio content, the device comprising: an audio encoder including one or more processors configured to specify, in the bitstream, audio rendering information that includes a signal value identifying an audio renderer to be used when generating the multi-channel audio content, wherein the signal value includes a plurality of matrix coefficients that define a matrix used to render spherical harmonic coefficients to a plurality of speaker feeds; and a memory coupled to the one or more processors, and configured to store the audio rendering information.

9. The device of claim 8, wherein the signal value further includes two or more bits that define an index that indicates that the bitstream includes the matrix used to render the spherical harmonic coefficients to the plurality of speaker feeds.

10. The device of claim 9, wherein the signal value further includes two or more bits that define a number of rows of the matrix included in the bitstream and two or more bits that define a number of columns of the matrix included in the bitstream.

11. The device of claim 8, wherein the one or more processors are further configured to specify a second signal value that specifies a rendering algorithm used to render audio objects or the spherical harmonic coefficients to the plurality of speaker feeds.

12. The device of claim 8, wherein the signal value includes two or more bits that define an index associated with the matrix of a plurality of matrices used to render audio objects or the spherical harmonic coefficients to the plurality of speaker feeds.

13. The device of claim 8, wherein the one or more processors are further configured to specify a second signal value that includes two or more bits that define an index associated with one of a plurality of rendering algorithms used to render the spherical harmonic coefficients to the plurality of speaker feeds.

14. A method of rendering multi-channel audio content from a bitstream, the method comprising: determining, from the bitstream, audio rendering information that includes a signal value identifying an audio renderer to be used when generating the multi-channel audio content, wherein the signal value includes a plurality of matrix coefficients that define a matrix used to render spherical harmonic coefficients to the multi-channel audio content in the form of a plurality of speaker feeds; and rendering, from the spherical harmonic coefficients and based on the audio rendering information, the multi-channel audio content in the form of the plurality of speaker feeds.

15. The method of claim 14, wherein rendering the plurality of speaker feeds comprises rendering the plurality of speaker feeds based on the matrix.

16. The method of claim 14, wherein the signal value includes two or more bits that define an index indicating that the bitstream includes the matrix used to render the spherical harmonic coefficients to the plurality of speaker feeds, and wherein the method further comprises parsing the matrix from the bitstream in response to the index, and wherein rendering the plurality of speaker feeds comprises rendering the plurality of speaker feeds based on the parsed matrix.

17. The method of claim 16, wherein the signal value further includes two or more bits that define a number of rows of the matrix included in the bitstream and two or more bits that define a number of columns of the matrix included in the bitstream, and wherein parsing the matrix from the bitstream comprises parsing the matrix from the bitstream in response to the index and based on the two or more bits that define a number of rows and the two or more bits that define the number of columns.

18. The method of claim 14, further comprising means for specifying a second signal value that specifies a rendering algorithm used to render audio objects or the spherical harmonic coefficients to the plurality of speaker feeds, and wherein rendering the plurality of speaker feeds comprises rendering the plurality of speaker feeds from the

audio objects or the spherical harmonic coefficients using the specified rendering algorithm.

19. The method of claim 14, wherein the signal value includes two or more bits that define an index associated with the matrix of a plurality of matrices used to render audio objects or the spherical harmonic coefficients to the plurality of speaker feeds, and wherein rendering the plurality of speaker feeds comprises rendering the plurality of speaker feeds from the audio objects or the spherical harmonic coefficients using the matrix of the plurality of matrixes associated with the index.

20. The method of claim 14, further comprising specifying a second signal value that includes two or more bits that define an index associated with one of a plurality of rendering algorithms used to render spherical harmonic coefficients to a plurality of speaker feeds, and wherein rendering the plurality of speaker feeds comprises rendering the plurality of speaker feeds from the spherical harmonic coefficients using the one of the plurality of rendering algorithms associated with the index.

21. The method of claim 14, wherein determining the audio rendering information includes determining the audio rendering information on a per audio frame basis from the bitstream, a single time form the bitstream or from metadata separate from the bitstream.

22. A device configured to render multi-channel audio content from a bitstream, the device comprising: one or more processors configured to; determine, from the bitstream, audio rendering information that includes a signal value identifying an audio renderer to be used when generating the multi-channel audio content, wherein the signal value includes a plurality of matrix coefficients that define a matrix used to render spherical harmonic coefficients to the multi-channel audio content in the form of a plurality of speaker feeds; and render, from the spherical harmonic coefficients and based on the audio rendering information, the multi-channel audio content as the plurality of speaker feeds; and a memory coupled to the one or more processors, and configured to store the plurality of speaker feeds.

23. The device of claim 22, wherein the one or more processors are configured to render the plurality of speaker feeds based on the matrix.

24. The device of claim 22, wherein the signal value includes two or more bits that define an index indicating that the bitstream includes the matrix used to render the spherical harmonic coefficients to the plurality of speaker feeds, wherein the one or more processors are further configured to parse the matrix from the bitstream in response to the index, and wherein the one or more processors are configured to render the plurality of speaker feeds based on the parsed matrix.

25. The device of claim 24, wherein the signal value further includes two or more bits that define a number of rows of the matrix included in the bitstream and two or more bits that define a number of columns of the matrix included in the bitstream, and wherein the one or more processors are configured to parse the matrix from the

bitstream in response to the index and based on the two or more bits that define a number of rows and the two or more bits that define the number of columns.

26. The device of claim 22, wherein the one or more processors are further configured to specifying a second signal value that specifies a rendering algorithm used to render audio objects or spherical harmonic coefficients to the plurality of speaker feeds, and wherein the one or more processors are configured to render the plurality of speaker feeds from the audio objects or the spherical harmonic coefficients using the specified rendering algorithm.

27. The device of claim 22, wherein the signal value includes two or more bits that define an index associated with the matrix of a plurality of matrices used to render audio objects or the spherical harmonic coefficients to the plurality of speaker feeds, and wherein the one or more processors are configured to render the plurality of speaker feeds from the audio objects or the spherical harmonic coefficients using the one of the plurality of matrixes associated with the index.

28. The device of claim 22, wherein the one or more processors are further configured to specifying a second signal value that includes two or more bits that define an index associated with one of a plurality of rendering algorithms used to render spherical harmonic coefficients to a plurality of speaker feeds, and wherein the one or more processors are configured to render the plurality of speaker feeds from the spherical harmonic coefficients using the one of the plurality of rendering algorithms associated with the index.

29. The device of claim 8, wherein the plurality of matrix coefficients define the matrix used to render the spherical harmonic coefficients to the plurality of speaker feeds corresponding to speakers arranged in an irregular speaker geometry.

30. The device of claim 22, wherein the plurality of matrix coefficients define the matrix used to render the spherical harmonic coefficients to the plurality of speaker feeds corresponding to speakers arranged in a regular, but non-standardized speaker geometry.

31. The method of claim 1, further comprising capturing, by one or more microphones, audio data representative of the spherical harmonic coefficients.

32. The device of claim 8, further comprising one or more microphones coupled to the one or more processor, and configured to capture audio data representative of the spherical harmonic coefficients.

33. The method of claim 14, further comprising reproducing, by one or more loudspeakers and based on the plurality of speaker feeds, a soundfield represented by the spherical harmonic coefficients.

34. The device of claim 22, further comprising one or more loudspeakers coupled to the

one or more processors, and configured to reproduce, based on the plurality of speaker feeds, a soundfield represented by the spherical harmonic coefficients.