CLAIMS:

1. A method of decoding a compressed Higher Order Ambisonics (HOA) representation of a sound or sound field, the method comprising:

receiving a bit stream comprising the compressed HOA representation, wherein the bit stream comprises a plurality of hierarchical layers that comprise a base layer and one or more hierarchical enhancement layers, wherein the plurality of hierarchical layers comprise components of the compressed HOA representation of the sound or sound field;

determining a highest usable layer among the plurality of hierarchical layers for decoding;

extracting a HOA extension payload assigned to the highest usable layer, wherein the HOA extension payload includes side information for parametrically enhancing a reconstructed HOA representation corresponding to the highest usable layer and wherein the HOA extension payload include bit stream elements for HOA spatial signal prediction decoding, wherein the reconstructed HOA representation corresponding to the highest usable layer is obtainable on a basis of transport signals assigned to the highest usable layer and any layers lower than the highest usable layer;

decoding the compressed HOA representation corresponding to the highest usable layer based on layer information, - transport signals assigned to the highest usable layer and any layers lower than the highest usable layer; and

parametrically enhancing the decoded HOA representation using the side information included in the HOA extension payload assigned to the highest usable layer.

2. The method of claim 1, wherein the layer information indicates a total number of additional ambient HOA coefficients for an enhancement layer.

3. The method of claim 1, wherein the layer information includes enhancement information that includes at least one of Spatial Signal Prediction, Sub-band Directional Signal Synthesis and Parametric Ambience Replication Decoder.

4. The method of claim 1, further including v-vector elements that are not transmitted for indices that are equal to indices of additional HOA coefficients included in a set of ContAddHoaCoeff.

5. The method of claim 1, wherein the layer information includes NumLayers elements, where each element indicates a number of transport signals included in all layers up to an i-th layer.

6. The method of claim 1, wherein the layer information includes an indicator of all actually used layers for a k-th frame.

7. The method of claim 1, wherein the layer information indicates that coefficients for predominant vectors are specified.

8. The method of claim 1, wherein the layer information indicates that coefficients of the predominant vectors corresponding to a number greater than a MinNumOfCoeffsForAmbHOA are specified.

9. The method of claim 1, wherein the layer information indicates MinNumOfCoeffsForAmbHOA and all elements defined in ContAddHoaCoeff are not transmitted, where lay is an index of layer containing vector based signal corresponding to a vector.

10. A non-transitory computer readable medium containing instructions that when executed by a processor perform the method of claim 1.

11. An apparatus for decoding a compressed Higher Order Ambisonics (HOA) representation of a sound or sound field, the apparatus comprising:

a receiver configured to receive a bit stream comprising the compressed HOA representation, wherein the bit stream comprises a plurality of hierarchical layers that comprise a base layer and one or more hierarchical enhancement layers, wherein the plurality of hierarchical layers comprise components of the compressed HOA representation of the sound or sound field,

a decoder configured to:

determine a highest usable layer among the plurality of hierarchical layers for decoding;

extract a HOA extension payload assigned to the highest usable layer, wherein the HOA extension payload includes side information for parametrically enhancing a

reconstructed HOA representation corresponding to the highest usable layer and wherein the HOA extension payload include bit stream elements for HOA spatial signal prediction decoding, wherein the reconstructed HOA representation corresponding to the highest usable layer is obtainable on a basis of transport signals assigned to the highest usable layer and any layers lower than the highest usable layer;

decode the compressed HOA representation corresponding to the highest usable layer based on layer information, transport signals assigned to the highest usable layer and any layers lower than the highest usable layer; and

parametrically enhance the decoded HOA representation using the side information included in the HOA extension payload assigned to the highest usable layer.