Claims

1. Apparatus for generating an enhanced sound field description, comprising:

a sound field generator for generating at least one sound field description indicating a sound field with respect to at least one reference location; and

a meta data generator for generating meta data relating to spatial information of the sound field,

wherein the at least one sound field description and the meta data constitute the enhanced sound field description,

wherein the sound field generator is configured

to generate a first sound field description with respect to the reference location, wherein the first sound field description comprises sound data only from sound sources located in a first volume around the reference location, and

to generate a second sound field description with respect to the reference location, wherein the second sound field description comprises sound data only from second sources located in a second volume around the reference location, the second volume being different from the first volume, and

wherein the meta data generator is configured to provide a spatial description of the first volume and/or the second volume.

2. Apparatus of claim 1,

wherein the first volume is a sphere around the reference location and wherein the second volume is a spherical shell around the reference location, the spherical shell having a diameter being greater than the diameter of the sphere, or

wherein the first volume is a first spherical shell, and the second volume is a second spherical shell, wherein a diameter of the first spherical shell is lower than a diameter of the second spherical shell,

wherein the meta data generator is configured to provide a spatial description of the sphere and the spherical shell or the first spherical shell and the second spherical shell.

3. Apparatus of claims 1 or 2,

wherein the first sound field description and the second sound field description are Ambisonics or DirAC (DirAC = Directional Audio Coding) descriptions.

4. Apparatus of one of claims 1 to 3,

wherein the sound field generator is configured to determine the first volume and the second volume statically or dependent on the sound field.

5. Apparatus of one of the claims 1 to 4,

wherein the meta data generator is configured to determine a distance range for each sound field description, the distance range being uniform for each volume of the first volume and the second volume or non-uniform, wherein, when the distance range is non-uniform for each volume of the first volume and the second volume, a distance range for a specific volume of the first volume and the second volume extending further away from the reference location is greater than a distance range more close to the reference location.

6. Apparatus of one of the preceding claims,

wherein the sound field generator is configured to generate, for each layer of a plurality of layers, a DirAC (DirAC = Directional Audio Coding) description of a sound field having one or more downmix signals and individual direction data and optionally diffuseness data for different time-frequency bins, and

wherein the meta data generator is configured to generate a single distance information item for each layer.

7. Apparatus of one of the preceding claims, further comprising an output interface for generating an output signal for transmission or storage, the output signal comprising, for a time frame, one or more audio signals derived from the sound field and the spatial information for the time frame.

8. Apparatus of claim 1, wherein the metadata generator is configured to generate a first geometrical information for the first sound-field description and a second geometrical information for the second sound-field description.

9. Apparatus of claim 8,

wherein the first geometrical information is a first representative distance from the first volume to a reference point;

wherein the second geometrical information is a second representative distance from the second volume to the reference point, wherein the reference point is given by the reference location or wherein the reference point is defined by a vector pointing from the reference location to the reference point.

10. Method of generating an enhanced sound field description, comprising:

generating at least one sound field description indicating a sound field with respect to at least one reference location; and

generating meta data relating to spatial information of the sound field,

wherein the at least one sound field description and the meta data constitute the enhanced sound field description,

wherein the generating at least one sound field description comprises generating a first sound field description with respect to the reference location, wherein the first sound field description comprises sound data only from sound sources located in a first volume around the reference location, and generating a second sound field

description with respect to the reference location, wherein the second sound field description comprises sound data only from second sources located in a second volume around the reference location, the second volume being different from the first volume, and wherein the generating the meta data comprises providing a spatial description of the first volume and/or the second volume.

11. Computer program claim for performing, when running on a computer or a processor, the method of claim 10.

12. Enhanced sound field description, comprising:

at least one sound field description indicating a sound field with respect to at least one reference location and meta data relating to spatial information of the sound field

wherein the at least one sound field description comprises a first sound field description with respect to the reference location, wherein the first sound field description comprises sound data only from sound sources located in a first volume around the reference location, and a second sound field description with respect to the reference location, wherein the second sound field description comprises sound data only from second sources located in a second volume around the reference location, the second volume being different from the first volume, and

wherein the meta data comprises a spatial description of the first volume and/or the second volume.