CLAIMS

1. A method of rendering an audio signal, the method comprising:

receiving a multichannel signal including at least one height input channel;

obtaining filter coefficients for the at least one height input channel, based on a Head-Related Transfer Function;

obtaining panning gains for the at least one height input channel, wherein the panning gains depend on a frequency range and a position of the at least one height input channel; and

performing elevation rendering on the at least one height input channel, based on the filter coefficients and the panning gains, to provide elevated sound images by a plurality of output channels.

2. The method of claim 1, the obtaining panning gains further comprising:

modifying paining gains for each of the plurality of output channels based on whether the each of the plurality of output channels is ipsilateral channel or contralateral channel.

3. The method of claim 1,

wherein the plurality of output channels are horizontal channels.

4. The method of claim 1, the method further comprising:

determining type of the elevation rendering; and

wherein the elevation rendering is performed further based on the determined type of the elevation rendering.

5. The method of claim 4,

wherein the type of the elevation rendering includes at least one of timbral rendering and spatial rendering.

6. The method of claim 4,

wherein the type of the elevation rendering is determined based on information included in audio bitstream of the audio signal.

7. The method of claim 1,

wherein each of the at least one height input channel is distributed to at least one of the plurality of output channels.

8. An apparatus of rendering an audio signal, the apparatus comprising:

a receiving unit configured to receive a multichannel signal including at least one height input channel;

an obtaining unit configured to obtain filter coefficients for the at least one height input channel, based on a Head-Related Transfer Function and obtain panning gains for the at least one height input channel, wherein the panning gains depend on a frequency range and a position of the at least one height input channel; and

a rendering unit configured to perform elevation rendering on the at least one height input channel, based on the filter coefficients and the panning gains, to provide elevated sound images by a plurality of output channels.