

METHOD FOR GENERATING CUSTOMIZED SPATIAL AUDIO WITH HEAD TRACKING

ABSTRACT OF THE DISCLOSURE

5 A headphone for spatial audio rendering includes a first database having an impulse response pair corresponding to a reference speaker location. A head sensor provides head orientation information to a second database having rotation filters, the filters corresponding to different azimuth and elevation positions relative to the reference speaker location. A digital signal processor combines the rotation filters with the impulse response pair to generate an output binaural audio signal to transducers of the headphone. Efficiencies in creating impulse response or HRTF databases are achieved by sampling the impulse response less frequently than
10 in conventional methods. This sampling at coarser intervals reduces the number of data measurements required to generate a spherical grid and reduces the time involved in capturing the impulse responses. Impulse responses for data points falling between the sampled data points are generated by interpolating in the frequency domain.

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Fig. 1A and 1B