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(54) Title: AUDIO PRECOMPENSATION CONTROLLER DESIGN USING A VARIABLE SET OF SUPPORT LOUDSPEAKERS

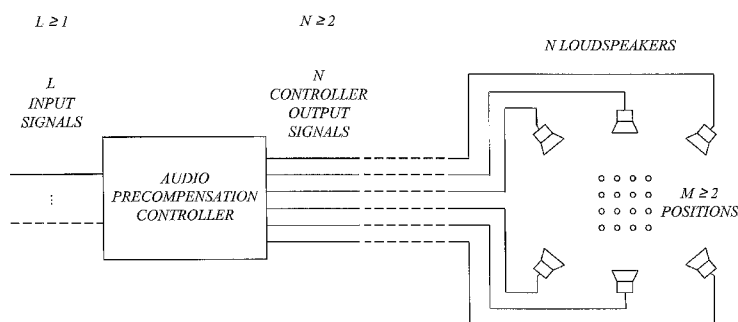


Fig. 3

(57) Abstract: A basic idea is to determine an audio precompensation controller for an associated sound generating system comprising a total of $N \geq 2$ loudspeakers, each having a loudspeaker input. The audio precompensation controller has a number $L \geq 1$ inputs for L input signals) and N outputs for N controller output signals, one to each loudspeaker. It is relevant to estimate, for each one of at least a subset of the N loudspeaker inputs, an impulse response at each measurement position. It is also important to specify, for each one of the L input signal(s), a selected one of the N loudspeakers as a primary loudspeaker and a selected subset S including at least one of the N loudspeakers as support loudspeaker(s). A key point is to specify, for each primary loudspeaker, a target impulse response at each measurement position with the target impulse response having an acoustic propagation delay, where the acoustic propagation delay is determined based on the distance from the primary loudspeaker to the respective measurement position. The idea is then to determine, for each one of the L input signal(s), based on the selected primary loudspeaker and the selected support loudspeaker(s), filter parameters of the audio precompensation controller so that a criterion function is optimized under the constraint of stability of the dynamics of the audio precompensation controller.