

Manipulating Measurements

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ABSTRACT

Lokki et al., Neil et al. and others use impulse response measurements from several halls in an effort to unravel the acoustic mysteries of concert halls. Lokki uses 17 different loudspeaker positions to simulate an orchestra, Neil uses 20. The measurements must be repeated for each seat position tested. The work is time consuming, and reproducing the recordings is complex, so few seats are tested. But impulse responses are easy to manipulate, and a few measurements can tell us far more than how a particular seat sounds in an empty hall. Individual reflections can be increased or decreased, the reverberation time, reverberant level, and the stage conditions can be altered at will. We also find that a single impulse response measurement can be modified to realistically reproduce five or more instruments, simplifying the recording process. Manipulating measured impulse responses in this way offers an opportunity to verify precisely what acoustic properties promote or hinder great sound. The results are provocative, and can be demonstrated binaurally to any listener without special rooms or fancy equipment.

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