

Comparisons of different microphones, microphone orientation and spacing on late lateral energy measurements.

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A strong correlation exists between listener envelopment and late lateral energy (Bradley and Soulodre, *J. Acoust. Soc. Am.* **98**:2590-2597, 1995), but limited work has been conducted on measuring this parameter in actual spaces. Measuring late lateral energy (GLL) requires a figure-of-eight pattern microphone to measure the lateral energy only, but an omni-directional microphone is also used simultaneously to measure other common room acoustics parameters. An investigation was conducted to determine the effects of various different microphones, microphone orientation, and the spacing between the bidirectional and omni-directional microphone on measured GLL values. Eight figure-of-eight pattern microphones were used, including both ribbon [(1) Cascade Fat Head II, (2) Royer R-121] and condenser [(2) AKG C414, (1) Neumann KM120, (2) Shure KSM44] microphones. Measurements were taken in an 80-seat lecture-style classroom, using the sine sweep method. The microphones were positioned at three different spacings from the omni-directional microphone, in both orientations at one spacing, and two different receiver locations. In general, differences of 1-2 dB were found between all of the microphones, while minimal differences were found between the two orientations and various spacings for each microphone. Implications of the results for GLL measurements are discussed. [Work supported by University of Hartford WELFund.]

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