

Investigation of the subjective impression of listener envelopment with both binaural recordings and auralizations.

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Listener envelopment (LEV) is the sense of being fully immersed in a sound field and can be used to compare the listening experience in different concert halls. LEV has been shown to correlate with the objective parameter late lateral sound level (GLL) through the use of simulated sound fields generated with delays and reverberators. The primary purpose of this study was to investigate this correlation using both binaural recordings made in a 900-seat hall and auralizations made in an ODEON v9.20 model with both measured and predicted GLL values. In addition, the ratings of the actual recordings and simulations were compared to determine equivalency. A subjective study was carried out using 35 musically-trained test participants who rated 24 stimuli, which varied as a function of both receiver position and hall setting. The ratings of the binaural recordings were found to have a linear correlation with both the measured and simulated GLL values, while the ratings of the auralizations were not found to have a clear linear relationship with GLL. When the ratings of the recordings and auralizations were compared, however, only two cases were found to be significantly different. [Work supported by a University of Hartford Greenberg Junior Faculty Grant.]

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