

## ACOUSTICS2008/2239 Measuring low-frequency noise indoors

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At low frequencies, the sound pressure level may vary 20-30 dB in a room due to standing waves. For assessment of annoyance, mainly areas with the highest occurring levels are relevant, since persons present in such areas are not helped by the existence of lower levels in other areas. The level that is exceeded in 10% of the volume of a room  $L_{10}$  is proposed as a rational and objective target for a measurement method. In Sweden and Denmark rules exist for measuring low-frequency noise indoors. The performance of these procedures was investigated in three rooms. The results from the Swedish method were close to the  $L_{10}$  target, but, due to a doubtful use of C-weighting in the scanning, it may give too low results in case of complex sounds. The Danish method was found to have a high risk of giving results substantially below the target, unless complainants can precisely appoint measurement positions, where the sound is loudest/most annoying - which they often cannot. An alternative method using measurements in four three-dimensional corners of the room is proposed. This easy and straightforward method seems to give reliable results close to the proposed target.