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Title: Loudness models applied to technical sounds
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Abstract

Loudness evaluation has become a central focus for assuring better consideration of subjective sound intensity phenomena than frequency-weighted levels such as dB(A). Different standards are available for evaluating loudness of stationary sounds (ANSI, ISO and DIN). In principle, standards are very helpful in daily life, even if the method does not consider the most recent research results. But a variety of standards generating different results, at least for the most important technical or industrial sounds, may lead to confusion. Considering that most of these sounds are time-variant, a single model of time-varying loudness is preferable.

At present the recently published extension of the German standard for time-varying loudness (DIN 45631/A1) is the sole standardized method, applicable also for stationary sounds. There are other models allowing for loudness evaluation of time-variant sounds. Some years ago, a "Hearing Model" was born out of a widespread interest to have a single standardized psychoacoustic model describing and explaining many phenomena at once. The Hearing Model is based on the physiology of human hearing and has been validated by testing against previously-conducted psychoacoustic research results. The different methods will be compared and validated with subjective tests using technical sounds.

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Equipment Needed for Presentation: PC, projection system, sound system
Preferred Method of Presentation: Oral
Paper Classification Codes:
PACS number:
66.Ba Models and theories of auditory processes
66.Cb Loudness, absolute threshold
66.Fe Discrimination: intensity and frequency
66.Lj Perceptual effects of sound
66.Yw Instruments and methods related to hearing and its measurement
INCE code:
63.1 Loudness
79.9 Other modeling, prediction and simulation methods