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Title:

Binaural Measurement Technology and Psychoacoustics - Revolution or Evolution of Acoustic Measurement Technology?

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Abstract:

Binaural measurement technology like an artificial head microphone was initially introduced in the 1980s to enable precise, reproducible and calibrated acoustic documentation of noise events to carry out an auditory assessment after modifications or when comparing different recordings. Due to the free-field equalization, the artificial head microphone signals could also be used for metrological analysis. After the aurally correct re-cording of sound events, the desire arose to also analysis like the human hearing describing the subjectively perceived auditory sound quality including psychoacoustics. With the help of psychoacoustic parameters such as loudness, sharpness, tonality, roughness, fluctuation and impulsiveness, the auditory impression of sound events can be viewed in a more differentiated way than just with the A-weighted level or third-octave spectrum. These variables have been standardized now; they could be implemented as a measurement parameter in practice. The Soundscape standard 12913 was the first standard or recommendation in ISO as well as in DIN, which normatively requests binaural measurement technology and recommends psychoacoustic analysis. The question of whether this is a revolution or merely an evolution of existing acoustic measurement technology is therefore of minor importance. Fact is the Soundscape standard represents a significant extension for the assessment of noise situations.