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Prediction of perceived sound quality of hearing aids (algorithms)
using perceptual models

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This contribution presents an overview of basic approaches for predicting the perceived sound quality of hearing aids and hearing aid algorithms using auditory processing models for hearing impaired. Comparison-based concepts will be considered in particular. The main characteristic of these concepts is the comparison of internal representations (the outputs of the auditory models) of a test and a reference signal. While this approach is straight-forward and has proven to be successful for the prediction of sound quality of lossy speech and audio processing systems perceived by normal-hearing listeners, the requirement of a reference representing the optimal quality can pose a problem in the case of hearing aids and hearing-impaired listeners. The potential and limitations of comparison-based approaches will be illustrated by example results from different studies obtained with an extended version of the perceptual audio quality model PEMO-Q.