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Metrics for the Evaluation of Audio Quality

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The reliability and the performance of an instrumental assessment method for audio systems hinges on the choice of appropriate metrics that quantify the quality of the system in a hearing-adequate manner. The presented approach for instrumental assessment of audio systems is based on binaural recordings of real music signals as well as measurement signals. The music signals were also used for auditory assessment of audio systems in earlier contributions.

Recently, research results revealed that the perceived overall quality of an audio system can be predicted to a high degree from three attributes: timbre, distortions and immersiveness. Besides a common preprocessing, each attribute requires specific analyses. For example, the analyses for distortions are not based on any binaural cues while these are of paramount importance for assessing immersiveness.

This contribution presents an overview of the assessment system along with an explicit description of analyses with their resulting metrics that are the foundation of the instrumental quality prediction. It describes the relation between the metrics and the quality perception, and makes a comparison with auditory results.