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Titel: **Psychoacoustic Evaluation of Vehicle Sounds**

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Typical vehicle interior sounds are caused by the engine, gearing, tires, ancillary units and the wind. Furthermore, there are also operational sounds such as indicating and alarm signals, as well as possible disturbing squeling and clattering incidents. These sounds play a decisive role in the customer's decision-making regarding his perception of the vehicle quality. In order to reduce time-consuming listening tests, the perception of these sound phenomena is often predicted by means of psychoacoustic parameters during the development process.

Methods for calculating the psychoacoustic parameters loudness and sharpness have already been standardized and established. The standardization of roughness is currently pursued in a DIN working group. Furthermore, there are other methods for further psychoacoustic values. Especially, the values of impulsiveness and tonality become more and more important in the field of vehicle sounds, e.g. for describing diesel clattering, or for evaluating the tonal components caused by alternative powertrain features.

In this lecture the different methods are explained in summary. On the basis of typical vehicle sounds, it is determined to what extent conclusions resulting from listening tests can also be reliably drawn from calculated psychoacoustic values.

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