

# Internoise 2011

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## Title

Sound Quality Metrics for Vehicle Interior Noise

## Special Session:

Vehicle Interior Noise

## Abstract

Product sounds, which lead to an impression of high quality, help manufacturers to stand out against their competitors in times of a highly competitive market. This is especially true with respect to diesel engines. In particular with the emerge of new drive concepts, it is a major requirement for the acceptance of any modern diesel engine on the market, besides the performance and fuel efficiency, that the NVH behaviour meets expectations of critical customers and is better than competitive products.

In order to achieve this objective, sound quality investigations are frequently performed, where advanced acoustical analyses and personal sound quality impressions are linked via metrics. A typical sound quality metric constitutes a mathematical relationship between independent and dependent variables. However, sound quality is not a simple inherent product property, it develops when listeners are exposed to the product and judge the sound on the basis of their history, experience and expectation in a specific situational context. Therefore, procedures and test designs have to be applied to provide an authentic context with a minimum of artificiality to collect reliable evaluation data.

On the basis of an extensive review of diverse diesel noise quality investigations adequate acoustical indicators and analyses will be extracted. In addition, the relevancy of different driving situations for the development of a sound quality impression will be investigated. Finally, the general range and applicability of diesel noise metrics will be discussed.

**Keywords:** sound quality, psychoacoustics, vehicle interior noise, vehicle acoustics

**INCE CLASSIFICATION OF SUBJECTS:** 61 Perception of sound

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