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ISO 16254:2016

Acoustics — Measurement of sound emitted by road vehicles of category M and N at standstill and low speed operation — Engineering method

Abstract

ISO 16254:2016 is derived from ISO 362-1 and specifies an engineering method for measuring the sound emitted by M and N category road vehicles at standstill and low speed operating conditions. The specifications reproduce the level of sound which is generated by the principal vehicle sound sources consistent with stationary and low speed vehicle operating conditions relevant for pedestrian safety. The method is designed to meet the requirements of simplicity as far as they are consistent with reproducibility of results under the operating conditions of the vehicle.

The test method requires an acoustic environment which is only obtained in an extensive open space. Such conditions usually exist during the following:

- measurements of vehicles for regulatory certification;
- measurements at the manufacturing stage;
- measurements at official testing stations.

The results obtained by this method give an objective measure of the sound emitted under the specified conditions of test. It is necessary to consider the fact that the subjective appraisal of the annoyance, perceptibility, and/or detectability of different motor vehicles or classes of motor vehicles due to their sound emission are not simply related to the indications of a sound measurement system. As annoyance, perceptibility and/or detectability are strongly related to personal human perception, physiological human condition, culture, and environmental conditions, there are large variations and therefore these terms are not useful as parameters to describe a specific vehicle condition.

Spot checks of vehicles chosen at random rarely occur in an ideal acoustic environment. If measurements are carried out on the road in an acoustic environment which does not fulfil the requirements stated in this International Standard, the results obtained might deviate appreciably from the results obtained using the specified conditions.

In addition, this International Standard provides an engineering method to measure the performance of external sound generation systems intended for the purpose of providing acoustic information to pedestrians on a vehicle's operating condition. This information is reported as objective criteria related to the external sound generation system's sound pressure level, frequency content, and changes in sound pressure level and frequency content as a function of vehicle speed. As such, these measures can provide pedestrians with information on the location, speed, acceleration, and deceleration behaviour of a vehicle. Annex A contains background information relevant in the development of this International Standard.

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