

**Acoustics - Measurement of the influence
of road surfaces on traffic noise - Part 1:
Statistical Pass-By method**

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surfaces on traffic noise - Part 1: Statistical Pass-By
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EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 11819-1:2002 sisaldab Euroopa standardi EN ISO 11819-1:2001 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 14.02.2002 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 11819-1:2002 consists of the English text of the European standard EN ISO 11819-1:2001.</p> <p>This document is endorsed on 14.02.2002 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala: This part of EN ISO 11819 describes a method of comparing traffic noise on different road surfaces for various compositions of road traffic for the purpose of evaluating different road surface types.</p>	<p>Scope: This part of EN ISO 11819 describes a method of comparing traffic noise on different road surfaces for various compositions of road traffic for the purpose of evaluating different road surface types.</p>
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ICS 17.140.30

Võtmesõnad: acoustic measurements, acoustics, comparison analysis, noise (sound), pavements (roads), road vehicles, traffic noise

English version

Acoustics

Measurement of the influence of road surfaces
on traffic noise

Part 1: Statistical Pass-By method
(ISO 11819-1 : 1997)

Acoustique – Mesurage de l'influence
des revêtements chaussées sur le
bruit émis par la circulation – Partie 1:
Méthode statistique au passage
(ISO 11819-1 : 1997)

Akustik – Messung des Einflusses
von Straßenoberflächen auf Verkehrs-
geräusche – Teil 1: Statistisches
Vorbeifahrtverfahren
(ISO 11819-1 : 1997)

This European Standard was approved by CEN on 2001-06-11.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Management Centre: rue de Stassart 36, B-1050 Brussels

Foreword

International Standard

ISO 11819-1 : 1997 Acoustics – Measurement of the influence of road surfaces on traffic noise – Part 1: Statistical Pass-By method,

which was prepared by ISO/TC 43 'Acoustics' of the International Organization for Standardization, has been adopted by Technical Committee CEN/TC 227 'Road materials', the Secretariat of which is held by DIN, as a European Standard.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by February 2002 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard:

Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

Endorsement notice

The text of the International Standard ISO 11819-1 : 1997 was approved by CEN as a European Standard without any modification.

Introduction

The emission and propagation of road traffic noise greatly depend on road surface characteristics, notably on texture and porosity. Both these characteristics influence the generation of tyre/road noise and, in addition, the porosity can influence the propagation of sound, particularly when the propagation takes place close to the surface. Power unit noise, which is usually generated at a greater height above the road surface than tyre/road noise, may also be affected during propagation by the porosity characteristics of the road surface. These effects lead to differences in sound levels, associated with a given traffic flow and composition, from different road surfaces of up to 15 dB, which can have a substantial impact on the environmental quality alongside a road.

It is therefore important to be able to measure this influence by a standardized method and to arrive at a quantitative ranking of road surfaces with respect to traffic noise. This part of ISO 11819 offers such a method, the objective of which is to satisfy a need expressed by road planners, road administrators, contractors, manufacturers of so-called "low-noise surfaces" and by other parties concerned with the prediction and control of road traffic noise.

1 Scope

This part of ISO 11819 describes a method of comparing traffic noise on different road surfaces for various compositions of road traffic for the purpose of evaluating different road surface types. Sound levels representing either light or heavy vehicles at selected speeds are assigned to a certain road surface. The method is applicable to traffic travelling at constant speed, i.e. free-flowing conditions at posted speeds of 50 km/h and upwards. For other driving conditions where traffic is not free-flowing, such as at junctions and where the traffic is congested, the road surface is of less importance.

A standard method for comparing noise characteristics of road surfaces gives road and environment authorities a tool for establishing common practices or limits as to the use of surfacings meeting certain noise criteria. However, it is not within the scope of ISO 11819 to suggest such criteria.

The Statistical Pass-By (SPB) method is intended to be used essentially for two main purposes. First it may be used to classify surfaces in typical and good condition as a type according to their influence on traffic noise (surface classification) and, secondly, it may be used to evaluate the influence on traffic noise of different surfaces at particular sites irrespective of condition and age. This latter type of application may be useful for example where a road is to be resurfaced and "before" and "after" measurements are required in order to assess the differences in traffic noise following resurfacing. However, due to severe requirements on the acoustical environment at the site, the method cannot generally be used for approval of works at any given site.

Clause 4 gives a general description of the SPB method.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 11819. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 11819 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 10844:1994, *Acoustics — Test surface for road vehicle noise measurement.*

ISO 13473-1:1997, *Acoustics — Characterization of pavement texture using surface profiles — Part 1: Determination of mean profile depth.*

IEC 60651:1979, *Sound level meters.*

IEC 60942:1988, *Sound calibrators.*

IEC 61260:1995, *Electroacoustics — Octave-band and fractional-octave-band filters.*