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BSI Standards Publication

Determination of the acoustic properties of markings — The CPX measurement method

bsi.

National foreword

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A list of organizations represented on this committee can be obtained on request to its committee manager.

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English Version

Determination of the acoustic properties of markings - The CPX measurement method

Détermination des propriétés acoustiques de marquages - La méthode CPX

Messung der akustischen Eigenschaften von Markierungen - Das CPX-Verfahren

This Technical Specification (CEN/TS) was approved by CEN on 6 June 2022 for provisional application.

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European foreword

This document (CEN/TS 17812:2022) has been prepared by Technical Committee CEN/TC 226 "Road equipment", the secretariat of which is held by AFNOR.

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Introduction

Structured road markings present one of several options to obtain an enhanced night time visibility during rain or wetness. It is for this reason that they underwent a growing popularity in the last years. Structured road markings can however also produce an increased noise emission during wheel passages, which may be observed in the vehicle but also in the vicinity of the road. The sound increase inside the car can be considered as a positive side effect, as it alarms the driver and may be very helpful for the prevention of "doze off" traffic accidents. The sound increase perceived outside the car, however, may have a positive aspect as it can warn people on the emergency lane about the approaching vehicle, but it may as well annoy people living around.

It is desirable that a measurement method exists to assess the noise production of those road markings during wheel passages which is representative, reproducible and generally applicable throughout Europe. This document deals with a dedicated method which has been developed by the expert panel "noise" of the CEN/TC 226/WG 2.

1 Scope

This document outlines a method to measure the typical external noise emission produced when tyres of passenger car roll over a structured road marking. The result is a measure for the noise perceived in the surroundings of the road, hence not for interior noise in the car.

This method can be used for three purposes:

— determination of initial acoustic properties of a road marking, yielding a noise label for a given system;

— testing of the acoustic conformity of a particular marking to the noise label determined during the determination of initial acoustic properties;

— monitoring of the acoustic properties in the course of its lifetime.

The test result allows the road owner to make an assessment of the risk of nuisance when s/he considers a particular road marking system for application on a road in a noise sensitive area, e.g. built up areas. The method is also applicable to measurements on milled rumble strips.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN ISO 11819-2:2017, *Acoustics - Measurement of the influence of road surfaces on traffic noise - Part 2: The close-proximity method (ISO 11819-2:2017)*

ISO/TS 11819-3:2021, *Acoustics — Measurement of the influence of road surfaces on traffic noise — Part 3: Reference tyres*

EN ISO 13473-1:2019, *Characterization of pavement texture by use of surface profiles - Part 1: Determination of mean profile depth (ISO 13473-1:2019, Corrected version 2021-06)*

EN 13036-1:2010, *Road and airfield surface characteristics - Test methods - Part 1: Measurement of pavement surface macrotexture depth using a volumetric patch technique*

IEC 61672-1, *Electroacoustics — Sound level meters — Part 1: Specifications*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
L_{eq}
equivalent continuous sound level
sound level in decibels, having the same total sound energy as a fluctuating level, measured over the same time interval, see IEC 61672-1