SLOVENSKI STANDARD
SIST-TS CEN/TS 18355:2027

01-januar-2027

Železniške naprave - Akustika - Avtomatske meritve hrupa, ki ga povzročajo železniška vozila med vožnjo

Railway applications - Acoustics - Unattended and automated measurements of noise emitted by railbound vehicles in operation

Bahnanwendungen - Akustik - Unbeaufsichtigte und automatisierte Messungen der Geräuschemission von spurgebundenen Fahrzeugen im Betrieb

Applications ferroviaires - Acoustique - Mesures non supervisées et automatisées du bruit émis en service par les véhicules circulant sur rail

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Ta slovenski standard je istoveten z: **CEN/TS 18355:2026**

ICS:

17.140.30	Emisija hrupa transportnih sredstev	Noise emitted by means of transport
45.060.01	Železniška vozila na splošno	Railway rolling stock in general

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TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

CEN/TS 18355

November 2026

ICS 45.060.01; 17.140.30

English Version

Railway applications - Acoustics - Unattended and automated measurements of noise emitted by railbound vehicles in operation

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European foreword

This document (CEN/TS 18355:2026) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

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Introduction

Railway exterior noise is encountered both along open track and in and around depots, stops, stations and other stop locations. It includes a number of different physical sources such as rolling noise, impact noise, traction noise, aerodynamic noise, curving noise, braking noise, horn noise and noise from auxiliary equipment and other components. The noise for any given train type strongly depends on the rolling stock design, operating conditions and the track type and condition.

Rolling noise is one of the main sources which contains a significant and sometimes dominant noise contribution from the track. This document is intended to characterize and specify the Long-Term Measurement (LTM) of noise emission of pass-by of trains in operation.

Such LTMs can be of interest for various reasons like e.g. maintenance of trains in service, deriving source terms for noise calculation schemes or monitoring the noise effect of retrofitting of wagons. In other words, LTM can be used to describe and evaluate the noise emissions caused by scheduled rail traffic.

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1 Scope

This document specifies long-term measurement methods to obtain trackside noise emission values of multiple trains passing by, automated and unattended, of all kinds of vehicles operating on rails in regular operation, taking into consideration the specific environmental, track and vehicle conditions.

It specifies the conditions of the measurement setup, data analysis and data processing methods.

The results are data sets of pass-by sound pressure levels or third octave spectra for different train, unit, running on different sites which can be used for different reporting objectives and data analysis. The following are described within the document:

— comparison of results from different scenarios, *e.g. to evaluate the noise reduction of innovative techniques or acoustically relevant modifications to the track structure on a particular track section*;

— trend analysis*;*

— averaging procedures, *e.g. for determination of acoustic parameters for source term calculations as given in EN 17936 or sites with other infrastructure related sources (such as bridges, crossings, switching, impact noise, curving noise).*

This document is not applicable to:

— type testing;

— attended measurements;

— parked or stationary vehicles;

— shunting yards;

— positions beyond 25 m from the track;

— obstructed positions such as behind barriers or around dwellings.

NOTE The procedures specified in this normative document are of survey grade (grade 2) as defined in EN ISO 12001.

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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 15461, *Railway applications — Noise emission — Characterisation of the dynamic properties of track sections for pass by noise measurements*

EN 15610, *Railway applications — Acoustics — Rail and wheel roughness measurement related to rolling noise generation*

EN IEC 60268-4:2018, *Sound system equipment - Part 4: Microphones*

EN 61672-1:2013, *Electroacoustics - Sound level meters - Part 1: Specifications*

EN 61672-3, *Electroacoustics - Sound level meters - Part 3: Periodic tests*

EN IEC 60942:2018, *Electroacoustics - Sound calibrators*

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EN 61260-1:2014, *Electroacoustics - Octave-band and fractional-octave-band filters - Part 1: Specifications*

CEN/TR 16891, *Railway applications - Acoustics - Measurement method for combined roughness, track decay rates and transfer functions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 17343 and the following apply.

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

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

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

3.1 General definitions

3.1.1
train
self-propelled rail vehicle or a self-propelled group of physically coupled rail vehicles

EXAMPLE 1: locomotive(s) coupled with trailers.

EXAMPLE 2: one multiple unit, or several multiple units coupled together.

[SOURCE: EN 17343:2023, 3.1.7.9. modified – Example 3 to entry has been deleted]

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3.1.2
train category
distinction of trains related to traffic type

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EXAMPLE: If no train categories are specified, the following classification is preferred:

— long-distance passenger rail transport;

— local passenger (public) rail transport;

— rail freight transport;

— other rail traffic.

3.1.3
train type
distinction of individual trains within a train category due to technical differentiation criteria

3.2 Definitions of long term measurement characteristics

3.2.1
long-term measurement (LTM)
measurement methods to obtain trackside noise emission values of multiple trains passing by for a longer time, automated and unattended

Note 1 to entry: The time duration depends on the reporting objectives. For additional information see Clause 5

Note 2 to entry: Long-term measurement of railway sound emissions is fundamental for railway noise monitoring

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