SLOVENSKI STANDARD
SIST EN 15153-4:2020

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Železniške naprave - Zunanje vidne in zvočne opozorilne naprave - 4. del: Zvočne opozorilne naprave za mestno železnico

Railway applications - External visible and audible warning devices - Part 4: Audible warning devices for urban rail

Bahnanwendungen - Optische und akustische Warneinrichtungen am Schienenfahrzeug - Teil 4: Akustische Warneinrichtungen für städtische Schienenbahnen

Applications ferroviaires - Dispositifs externes d'avertissement optiques et acoustiques - Partie 4 : Avertisseurs sonores pour le rail urbain

Ta slovenski standard je istoveten z: **EN 15153-4:2020**

ICS:

45.060.10	Vlečna vozila	Tractive stock
45.140	Oprema za podzemne vlake, tramvaje in lahka tirna vozila	Metro, tram and light rail equipment

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EUROPEAN STANDARD
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English Version

Railway applications - External visible and audible warning devices - Part 4: Audible warning devices for urban rail

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 15153-4:2020) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by July 2020, and conflicting national standards shall be withdrawn at the latest by July 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This series of documents *Railway applications — External visible and audible warning* devices consists of the following parts:

— Part 1: *Head, marker and tail lamps for heavy rail*;

— Part 2: *Warning horns for heavy rail*;

— Part 3: *Visible warning devices for urban rail*;

— Part 4: *Audible warning devices for urban rail* (this document).

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This document sets out the requirements for external audible warning devices for urban rail vehicles as defined in the CEN-CENELEC Guide 26.

1 Scope

This document defines the functional and technical requirements for exterior audible warning devices for urban rail vehicles as defined in the CEN-CENELEC Guide 26, i.e. metro systems, trams, light rail, and local rail systems.

This document also defines the requirements for testing and conformity assessment.

NOTE The requirements for exterior audible warning devices for heavy rail vehicles are found in EN 15153-2:2020.

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 15153-2:2020, *Railway applications - External visible and audible warning devices for trains - Part 2: Warning horns for heavy rail*

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 http://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

3.1
Urban Guided Transport (UGT) systems
system covering metro, tram and light rail, and defined as public transport systems permanently guided at least by one rail, intended for the operation of local, urban and suburban passenger services with self-propelled vehicles and operated either segregated or not from general road and pedestrian traffic

Note 1 to entry: Adapted from CEN-CENELEC Guide 26.

3.2
metro system
UGT system operated on its own right of way and segregated from general road and pedestrian traffic; consequently designed for operations in tunnels, viaducts or on surface level but with physical separation in such a way that inadvertent access is not possible

Note 1 to entry: In different parts of the world, Metro systems are also known as the underground, the subway or the tube. Rail systems with specific construction issues operating on a segregated guideway (e.g. monorail, rack railways) are also treated as Metros as long as they are designated as part of the urban public transport network.

Note 2 to entry: Adapted from CEN-CENELEC Guide 26.

3.3
tram
UGT system not segregated from general road and pedestrian traffic, which shares its right of way with general road and/or pedestrian traffic and is therefore embedded in its relevant national road traffic legislation (highway codes and specific adaptations)

Note 1 to entry: Adapted from CEN-CENELEC Guide 26.

3.4
light rail
UGT system operated on parts of the system not segregated from general road and pedestrian traffic, and on parts of the system with segregated right-of-way. The segregation may include some sections of line where inadvertent access is not possible

Note 1 to entry: Adapted from CEN-CENELEC Guide 26.

3.5
local rail system
system connecting city centres with their suburban hinterland or regional local centres, operated on rights of way which are basically segregated from general road and/or pedestrian traffic and/or which can be declared by law as independent from the public environment even if they are not segregated by location, form of construction or appropriate measures

Note 1 to entry: Local rail systems, by national decision complying with Article 1.3 (a) or (b) of Directive 2008/57/EC, may be excluded from the European Community Rail System.

Note 2 to entry: For historical reasons local rail systems may be strongly influenced by conventional railway parameters and their operations procedures.

Note 3 to entry: Adapted from CEN-CENELEC Guide 26.

3.6
tram/train
vehicle designed for combined use on both a tram or light rail infrastructure and a heavy rail infrastructure

Note 1 to entry: Adapted from DIRECTIVE (EU) 2016/797.

3.7
vehicle
complete assembly of one or more cars

3.8
vehicle front
leading edge of the vehicle in its operational condition

Note 1 to entry: This would be the extreme front edge of any of the following - couplers, buffers, structures and vehicle profile.

3.9
warning horn
warning device, generating an extended single lower frequency sound

Note 1 to entry: A warning horn may also be referred to as a ‘klaxon’, ‘makrophon’, or ‘typhon’ (similar to that used in cars).

Note 2 to entry: The adjustment of a set of appropriate sound pressure levels enables the warning horn to be used for different ranges including short-range, medium-range and long-range.

3.10
warning bell
medium-range warning device, generating a single impulse sound or series of recurring impulse sounds

3.11
soft bell
short-range warning device, generating a single impulse sound or series of recurring impulse sounds

Note 1 to entry: The soft bell is also referred to as a 'gong'

3.12
whistle
short-range and medium-range audible warning device, generating a single higher frequency sound

3.13
A-weighted sound pressure level
L_{pA}
sound pressure level obtained by using the frequency weighting A, given by the following formula:

$$L_{pA} = 10 \cdot \lg\left(\frac{p_A}{p_0}\right)^2 \; dB$$

where

L_{pA} is the A-weighted sound pressure level in dB;

p_A is the RMS A-weighted sound pressure in Pa;

p_0 the reference sound pressure; p_0 = 20 µPa

Note 1 to entry: The definition for $L_{pCeq,T}$ is given in EN 15153–2.

3.14
AF-weighted maximum sound pressure level
$L_{pAF,max}$

maximum value of the A weighted sound pressure level determined using time weighting F (fast)

Note 1 to entry: This is from EN 61672-1.

4 Symbols and abbreviations

For the purposes of this document, the following symbols and abbreviations apply.

dB decibel

Hz Hertz, the SI unit of frequency, equivalent to cycles per second

Pa Pascal, the SI unit of pressure

RMS root mean square, defined as the square root of the arithmetic mean of the squares of a set of numbers