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**Železniške naprave - Zunanje vidne in zvočne opozorilne naprave - 3. del: Zunanje vidne opozorilne naprave za mestno železnico**

Railway applications - External visible and audible warning devices - Part 3: External visible warning devices for urban rail

Bahnanwendungen - Externe optische und akustische Warneinrichtungen - Teil 3: Externe optische Warneinrichtungen für städtische Schienenbahnen

Applications ferroviaires - Dispositifs externes d'avertissement optiques et acoustiques - Partie 3 : Dispositifs externes d'avertissement optiques et acoustiques pour le rail urbain

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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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**Railway applications - External visible and audible  
warning devices - Part 3: External visible warning devices  
for urban rail**

Applications ferroviaires - Dispositifs externes  
d'avertissement optiques et acoustiques - Partie 3 :  
Dispositifs externes d'avertissement optiques et  
acoustiques pour le rail urbain

Bahnanwendungen - Externe optische und akustische  
Warneinrichtungen - Teil 3: Externe optische  
Warneinrichtungen für städtische Schienenbahnen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 256.

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## European foreword

This document (prEN 15153-3:2017) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

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 mainline rail;
- Part 2: Warning horns for mainline rail;
- Part 3: External visible warning devices for urban rail (this document);
- Part 4: Warning horns for urban rail.

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## Introduction

This European Standard sets out the requirements for exterior visible devices for urban rail vehicles, as defined in the CEN-CENELEC Guide 26.

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## 1 Scope

This European Standard defines the functional and technical requirements for exterior visible 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 European Standard also defines the requirements for testing and conformity assessment.

NOTE The requirements for exterior visible warning devices for mainline rail are found in prEN 15153-1.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

prEN 15153-1:2017, *Railway applications — External visible and audible warning devices – Part 1: Head, marker and tail lamps for mainline rail*

UN/ECE Regulation 6, *Uniform provisions concerning the approval of direction indicators for power-driven vehicles and their trailers*

UN/ECE Regulation 7, *Uniform provisions concerning the approval of front and rear position lamps, stop-lamps and end-outline marker lamps for motor vehicles (except motor cycles) and their trailers*

UN/ECE Regulation 19, *Uniform provisions concerning the approval of power-driven vehicle front fog lamps*

UN/ECE Regulation 23, *Uniform provisions concerning the approval of reversing and manoeuvring lamps for power-driven vehicles and their trailers*

UN/ECE Regulation 38, *Uniform provisions concerning the approval of rear fog lamps for power-driven vehicles and their trailers*

UN/ECE Regulation 48, *Uniform provisions concerning the approval of vehicles with regard to the installation of lighting and light-signalling devices*

UN/ECE Regulation 87, *Uniform provisions concerning the approval of daytime running lamps for power-driven vehicles*

UN/ECE Regulation 104, *Uniform provisions concerning the approval of retro-reflective markings for vehicles of category M, N and O*

UN/ECE Regulation 112, *Uniform provisions concerning the approval of motor vehicle headlamps emitting an asymmetrical passing beam or a driving beam or both and equipped with filament lamps and/or light emitting diode (LED) modules*

UN/ECE Regulation 113, *Uniform provisions concerning the approval of motor vehicle headlamps emitting a symmetrical passing beam or a driving beam or both and equipped with filament, gas-discharge light sources or LED modules*

## 3 Terms and definitions

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

**prEN 15153-3:2017 (E)**

- Note 1 Definitions 3.1 to 3.5 from CEN-CENELEC Guide 26.
- Note 2 Definition 3.6 from BOStrab.
- Note 3 Definitions 3.9, 3.19, 3.20 and 3.22 from prEN 15153-1:2017.
- Note 4 Definitions 3.10 to 3.18 and 3.21 from UN/ECE Regulations.

**3.1****Urban guided transport (UGT) systems**

UGT systems cover metro, tram and light rail, and are 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

**3.2****metro system**

UGT systems operated on their own right of way and segregated from general road and pedestrian traffic

NOTE to entry: They are 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. 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

**3.3****trams**

UGT systems not segregated from general road and pedestrian traffic, which share their right of way with general road and/or pedestrian traffic and are therefore embedded in their relevant national road traffic legislation (highway codes and specific adaptations)

**3.4****light rail**

light rail is defined as a UGT system operated in parts of the system not segregated from general road and pedestrian traffic, and in parts of the system with segregated right-of-way

NOTE to entry: The segregation may include some sections of line where inadvertent access is not possible

**3.5****local rail systems**

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 to entry: Such systems connect city centres with their suburban hinterland or regional local centres. Such systems are 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. For historical reasons they might be strongly influenced by conventional railway parameters and their operations procedures

**3.6****tram/train**

vehicle designed as a tram which may, under specific conditions, enter the rail network

**3.7****vehicle**

refers to the complete assembly of one or more cars

**3.8****tramcar**

refers to one car of a tram

**3.9****head lamp**

device fitted to the front of the vehicle that emits white light, intended to provide visual warning of an approaching vehicle, and/or to illuminate the area immediately in front of the vehicle

**3.10****daytime running lamp**

lamp facing in a forward direction used to make the vehicle more easily visible when driving during daytime

**3.11****direction indicator**

lamp used to indicate to other road users that the driver intends to change direction to the right or to the left

**3.12****stop lamp**

signal to indicate to other road users to the rear of the vehicle that its driver is applying the brake

NOTE to entry: Stop lamps are not required to be lit when the vehicle is not in service, for example when parked.

**3.13****hazard warning signal**

simultaneous operation of all of a vehicle's direction indicator lamps to show that the vehicle temporarily constitutes a special danger to other road users

**3.14****retro-reflector**

device used to indicate the presence of a vehicle by the reflection of light emanating from a light source not connected to the vehicle, the observer being situated near the source

**3.15****front fog lamp**

lamp used to improve the illumination of the area ahead of the vehicle in case of fog or any similar condition of reduced visibility

**3.16****rear fog lamp**

lamp used to make the vehicle more easily visible from the rear in dense fog

**3.17****side marker lamp**

lamp used to indicate the presence of the vehicle when viewed from the side

**prEN 15153-3:2017 (E)****3.18****outline marker lamp**

lamp fitted near to the extreme outer edge and as close as possible to the top of the vehicle and intended to indicate clearly the vehicle's overall width

NOTE to entry: This lamp is intended, for certain vehicles, to draw particular attention to its bulk.

**3.19****marker lamp**

device fitted to the front of the vehicle that emits white light, intended to indicate the presence of a rail vehicle, to provide visual warning of an approaching rail vehicle

**3.20****tail lamp**

device fitted to the rear of the vehicle that emits red light, intended to indicate the presence of the rail vehicle

**3.21****reversing lamp**

lamp fitted to the rear of the vehicle, intended to provide visual warning of a reversing vehicle, and/or to illuminate the area immediately to the rear of the vehicle

**3.22****lit area**

active optical area of a lamp projected into a plane perpendicular to the optical axis

**3.23****geometric centre**

location defined as the 'centre of gravity' for the lit area of the lamp

NOTE to entry: For irregular shaped lamps, this may be outside the lit area.

**4 Symbols and abbreviations**

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

$\text{cd}\cdot\text{m}^{-2}$  Candela per square metre, the SI unit of luminance

LED Light Emitting Diode

UGT Urban Guided Transport

**5 Requirements****5.1 General**

The technical requirements for visible warning devices on metro systems, trams, light rail, and local rail systems are set out in 5.2, 5.3, 5.4 and 5.5 (respectively). The testing requirements are set out in Clause 6.

The application requirements are set out in Table 1.

**Table 1 — Application requirements for visible warning devices on urban rail vehicles**

Visible warning device		Metro system	Tram	Light rail system	Local rail system
Device type	Number				
Head lamps	2	M <sup>a</sup>	M	M	M
Marker lamps	2		-	-	M
Daytime running lamps	2	-	M <sup>b</sup>	M <sup>b</sup>	M <sup>b</sup>
Direction indicators	N	-	M	M	M
Tail lamps	2	M	M	M	M
Stop lamps	2	-	M	M	M
Hazard warning lamps	N	-	M	M	M
Rear-mounted retro-reflectors	N	-	M	M	M
Reversing lamp(s)	1 or 2	-	M <sup>c</sup>	M <sup>c</sup>	M <sup>c</sup>
Front fog lamp(s)	1 or 2	-	O	O	O
Upper marker lamp	1	O	O	O	M
Outline marker lamps	N	-	O	O	O
Side marker lamps	3 <sup>d</sup>	-	O	O	O
Rear fog lamp(s)	1 or 2	-	O	O	O
Side retro-reflectors	3 <sup>d</sup>	-	M	M	O
<b>Key</b> M = mandatory N = depends on the vehicle configuration O = optional					
<sup>a</sup> As a minimum, the specified number of one device type shall be fitted. <sup>b</sup> This may be the lit dipped head lamps according to 5.3.1, 2). <sup>c</sup> In the case of bi-directional vehicles, this may be the head lamp. <sup>d</sup> Per each side of the vehicle.					

NOTE Guidance on the control of lamps and the operational checking of lamps can be found in EN 16186-2.

## 5.2 Metro systems

### 5.2.1 Provision of visible warning devices on metro systems

As a minimum, vehicles operating on metro systems shall be fitted with the following exterior visible warning devices at each end of the vehicle:

- a) two white lamps, which may be head lamps or lower marker lamps, or a combination;
- b) two red tail lamps.