



SLOVENSKI STANDARD
SIST EN 16494:2015
01-junij-2015

Železniške naprave - Zahteve za signalne/opozorilne table ERTMS vzdolž proge

Railway applications - Requirements for ERTMS Trackside Boards

Bahnanwendungen - Anforderungen für ERTMS-Signalisierung

Applications ferroviaires - Exigences relatives aux plaques ERTMS le long de la voie

Ta slovenski standard je istoveten z: EN 16494:2015

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EUROPEAN STANDARD
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English Version

Railway applications - Requirements for ERTMS Trackside Boards

Applications ferroviaires - Exigences relatives aux pancartes ERTMS

Bahnwendungen - Anforderungen an ERTMS-Strecken- und Signaltafeln

This European Standard was approved by CEN on 12 December 2014.

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 CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists 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 CEN-CENELEC Management Centre has the same status as the official versions.

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 16494:2015) 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of an identical text or by endorsement, at the latest by October 2015 and conflicting national standards shall be withdrawn at the latest by October 2015.

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

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

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

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EN 16494:2015 (E)**Introduction**

This European Standard was produced for the specification and harmonization of a specific set of ERTMS trackside boards to support ETCS and GSM-R operations.

The existing DMI symbols within the scope of this European Standard were considered for the trackside board designs but were found to be unreadable due to complexity of the designs. For this reason the abstract designs shown in Table 1 were developed.

This European Standard contains colour images for indicational purposes only. The colours are not representative of the specification. The drawings shown in Table 1 and Table 2 are not to scale.

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1 Scope

This European Standard defines the requirements for the provision, visibility, readability, maintenance and testing of a specific set of ERTMS trackside boards associated with the following DMI and ETCS track conditions:

- ETCS stop marker;
- ETCS location marker, the trackside ETCS signal to identify a specific location on the line;
- level transition, corresponding to transitions between ETCS levels;
- lower pantograph;
- pantograph lowered;
- raise pantograph;
- neutral section announcement;
- neutral section;
- end of neutral section;
- GSM-R network border marker.

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This European Standard includes the arrangement of the boards and their interface with existing systems (track, cab design including cab sight lines, visibility by the driver and train head lamps).

NOTE 1 The ETCS and GSM-R signs are needed when the information normally associated with the DMI symbols is provided at the trackside.

NOTE 2 The application of ERTMS trackside boards is not within the scope of this standard.

Sighting requirements are not included within the scope of this standard. Sighting requirements for the boards may be different according to their level of authority: marker boards 'End of Authority' need to be treated with the same level of authority as a signal and may have enhanced sighting requirements; the remaining boards may be sighted as generic signage sighting rules. The sighting process needs to be implemented in accordance with national safety rules.

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.

EN 12899-1:2007, *Fixed, vertical road traffic signs — Part 1: Fixed signs*

EN 15273-1, *Railway applications — Gauges — Part 1: General — Common rules for infrastructure and rolling stock*

EN 16494:2015 (E)**3 Terms and definitions**

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

3.1**cab sight lines**

viewing directions achievable by the driver in the normal driving position

3.2**ETCS track conditions**

ETCS operating conditions which include the normal and degraded mode

3.3**ERTMS trackside boards**

fixed permanent boards which provide trackside visual information to train drivers operating under ERTMS

3.4**readability**

characteristic of a sign by which, when it is viewed under the conditions defined for the sign by a person just meeting the relevant eyesight standard, the message it conveys is understandable

4 Symbols and abbreviations

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

DMI	Driver-Machine Interface	SIST EN 16494:2015
ERTMS	European Rail Traffic Management System	http://standards.iteh.ai/catalog/standards/sist/0be16a43-ee76-4c9d-ad00-28de8a4df410/sist-en-16494-2015
ETCS	European Train Control System	
GSM-R	Global System for Mobile communication — Rail	
LT	Level Transition	
TSI	Technical Specification for Interoperability	

5 Requirements**5.1 General**

To assist in readability, the ERTMS trackside boards shall comply with the following:

- physical requirements for the trackside boards, as set out in 5.2;
- optical requirements, as set out in 5.3;
- mechanical performance in environmental conditions, as set out in 5.4;
- maintenance requirements, as set out in 5.5.

The installation of a given trackside board shall require an assessment to determine:

- location, as set out in 5.6;
- selection of the appropriate size from the alternatives given in Tables 3 and 4;

— alignment, as set out in 5.7.

5.2 Physical requirements for ERTMS trackside boards

5.2.1 General

The design and dimensions of the ERTMS trackside boards are specified in 5.2.2 and 5.2.3.

5.2.2 Design

The designs of the ERTMS trackside boards are shown in Table 1 for the ETCS trackside boards and in Table 2 for GSM-R trackside board.

NOTE 1 The colours are not representative of the specification.

NOTE 2 The drawings shown in Tables 1 and 2 are not to scale.

Table 1 — Design of ETCS trackside boards

Description applicable to DMI	Description provided for information only	Symbol
N/A	ETCS Stop Marker	<p data-bbox="464 987 1123 1099">iTeh STANDARD PREVIEW (standards.iteh.ai)</p> <p data-bbox="429 1133 1158 1227">SIST EN 16494:2015 https://standards.iteh.ai/catalog/standards/sist/0be16a43-ec76-4c9d-ad00-28de8a4df410/sist-en-16494-2015</p> <p data-bbox="592 1599 1477 1659">Note that the arrow may face to the left, down or to the right, according to the line to which it refers.</p> <p data-bbox="592 1677 1477 1767">In addition to the symbol given above, an identification plate shall be provided. National rules shall apply to the design and positioning of this identification plate.</p> <p data-bbox="592 1785 1477 1841">NOTE For completeness, this symbol is reproduced for information only, and has been developed from EEIG 06E068.</p>