

English Version

## Railway applications - Requirements for ERTMS Trackside Boards

Applications ferroviaires - Exigences relatives aux pancartes ERTMS

Bahnanwendungen - Anforderungen an ERTMS-Strecken- und Signaltafeln

This European Standard was approved by CEN on 24 February 2025.

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.

CEN members are the national standards bodies of 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, Türkiye and United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

## Contents

European foreword .....	3
Introduction.....	4
1 Scope.....	5
2 Normative references.....	6
3 Terms and definitions.....	7
4 Symbols and abbreviations.....	7
5 Requirements.....	8
5.1 General.....	8
5.2 Physical requirements for ERTMS trackside boards.....	8
5.2.1 General.....	8
5.2.2 Design.....	8
5.2.3 Dimensions.....	25
5.3 Optical properties.....	29
5.3.1 Optical properties of trackside boards.....	29
5.3.2 Optical properties of the rear of trackside boards.....	30
5.4 Durability in environmental conditions.....	30
5.5 Maintenance requirements.....	30
5.6 Location and alignment of trackside boards .....	30
6 Test methods.....	31
6.1 Test samples.....	31
6.2 Test for dimensions .....	31
6.3 Test for optical properties.....	31
6.4 Test for environmental properties.....	31
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive (EU) 2016/797 aimed to be covered .....	32
Bibliography .....	34

## European foreword

This document (EN 16494:2025) 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 2025, and conflicting national standards shall be withdrawn at the latest by October 2025.

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 document supersedes EN 16494:2015.

This document includes the following changes with respect to EN 16494:2015:

- clarification of the scope to exclude mobile, backlit and temporary signs;
- dimensional corrections to the ETCS Stop Marker and ETCS Location Marker;
- new trackside boards were introduced (traction system 25 kV, 15 kV, 3000 V, 1500 V and 750 V, audible warning device, safe stopping area, non-stopping area, inhibition of magnetic shoe brake, inhibition of eddy current brake, inhibition of regenerative brake, close air-conditioning, open air-conditioning, and level crossing marker);
- an option for diamond-shaped trackside boards (electric traction MBs only);
- clarification to existing maintenance requirements;
- revision of the options for standard dimensions.

This document has been prepared under a standardization request addressed to CEN and CENELEC by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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, Türkiye and the United Kingdom.

# 1 Scope

This document is applicable to the heavy rail system.

This document 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;
- 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;
- no traction system fitted announcement;
- no traction system fitted indication;
- traction system AC 25 kV 50 Hz announcement;
- traction system AC 25 kV 50 Hz indication;
- traction system AC 15 kV 16,7 Hz announcement;
- traction system AC 15 kV 16,7 Hz indication;
- traction system DC 3 kV announcement;
- traction system DC 3 kV indication;
- traction system DC 1,5 kV announcement;
- traction system DC 1,5 kV indication;
- traction system DC 600/750 V announcement;
- traction system DC 600/750 V indication;
- activate the audible warning device (horn) indication;
- safe stopping area announcement;
- safe stopping area indication for start;

- safe stopping area indication for end;
- inhibition of brake announcement/indication for start/indication for revocation;
- level crossing marker.

NOTE The brake MBs apply for any of the three brake types (eddy current, magnetic shoe, regenerative), whereas the exact type concerned would be known by the driver via existing Route knowledge.

The following ETCS track conditions are outside the scope of this document:

- safe stopping area semi-continuous indication for in-between;
- non-stopping area announcement;
- non-stopping area indication for start;
- non-stopping area indication for end;
- non-stopping area semi-continuous indication for in-between;
- close air conditioning intake announcement;
- close air conditioning intake indication;
- open air conditioning intake announcement;
- open air conditioning intake indication.

This document 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).

Mobile, backlit and temporary signs are not within the scope of this document.

The application of ERTMS trackside boards is not within the scope of this document.

Sighting requirements are not within the scope of this document. The sighting process needs to be implemented in accordance with national rules.

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

EN 50125-3:2003,<sup>1</sup> *Railway applications - Environmental conditions for equipment - Part 3: Equipment for signalling and telecommunications*

---

<sup>1</sup> Document impacted by EN 50125-3:2003/AC:2010.

### 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:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

#### 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
ERTMS	European Rail Traffic Management System
ETCS	European Train Control System
GSM-R	Global System for Mobile communication — Rail
LT	Level Transition
MB	Marker Board
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 4, 5 and 6;
- alignment, as set out in 5.6.

### 5.2 Physical requirements for ERTMS trackside boards

#### 5.2.1 General

The design and dimensions of the ERTMS trackside boards shall be as specified in 5.2.2 and 5.2.3.

All characters shall be a sans-serif typeface the same as or equivalent to “Arial Bold”.

By agreement between contractors the format of the trackside boards associated with electric traction (i.e. Table 1 and Table 3, as applicable) may be modified such that they are diamond-shaped. In this case, the icons and characters shall be the same as shown in Tables 1, 2 and 3; only the background areas shall change in format. In all cases of diamond-shaped trackside boards, the correct proportions shown in Tables 1, 2 and 3 shall be preserved. The dimensions of diamond-shaped trackside boards shall be agreed between contractors.

#### 5.2.2 Design

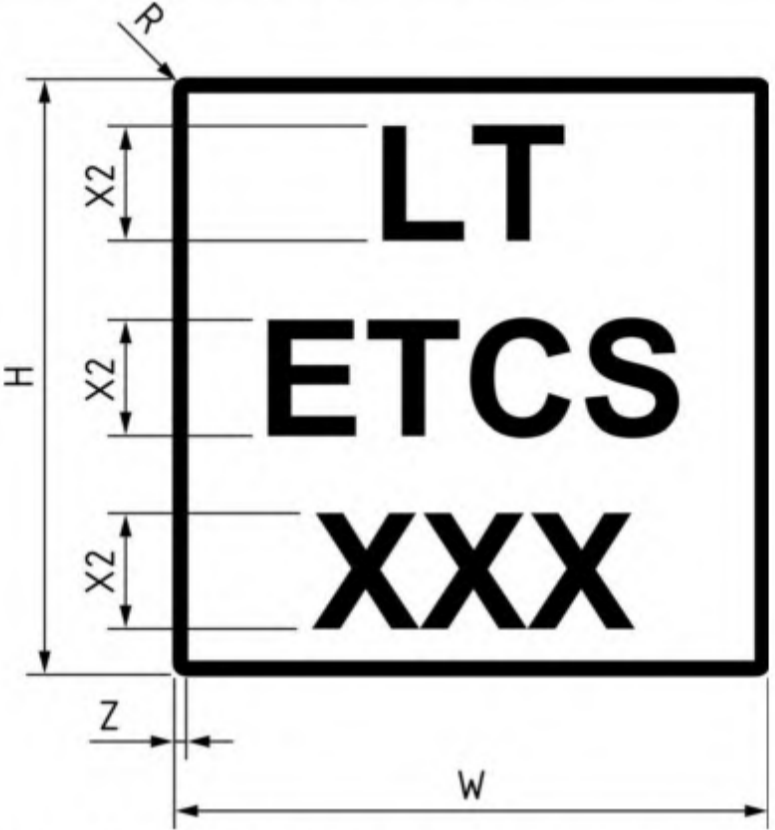
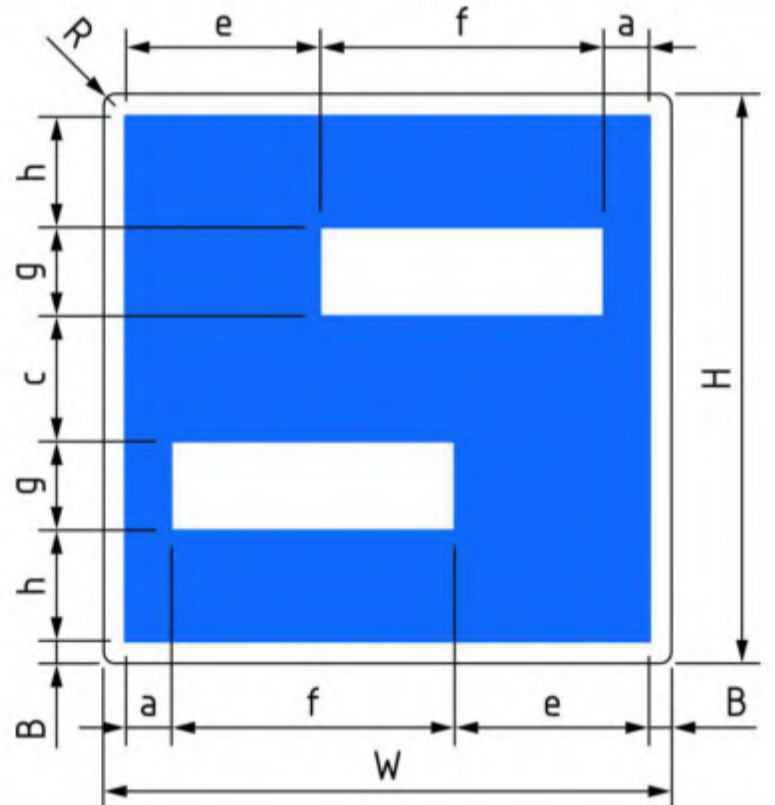
The designs of the ERTMS trackside boards shall be as shown in Table 1 for the ETCS trackside boards and in Table 2 for GSM-R trackside board. The designs of the ETCS track conditions are shown in Table 3.

NOTE 1 This document contains colour images for indicational purposes only. The appearance of the colours in this document is not representative of the specification, which is covered in 5.3.1.

NOTE 2 The drawings shown in Tables 1, 2 and 3 are not to scale.

Table 1 — Design of ETCS trackside boards

Trackside Board Number	Description applicable to DMI	Description provided for information only	Symbol <sup>a</sup>
01	N/A	ETCS Stop Marker	<p>NOTE 1 Note that the arrow can face to the left, down or to the right, according to the line to which it refers.</p> <p>NOTE 2 In addition to the symbol given above, an identification plate can be provided.</p> <p>NOTE 3 This symbol is reproduced for information only, and has been developed from EEIG 06E068.</p>
02	N/A	ETCS location marker	<p>NOTE 1 The arrow can face to the left, down or to the right, according to the line to which it refers.</p>

Trackside Board Number	Description applicable to DMI	Description provided for information only	Symbol <sup>a</sup>
			NOTE 2 In addition to the symbol given above, an identification plate can be provided.
03	N/A	Level transition board XXX represents optional level information and may be up to three characters, to be used as required (or not at all). See Figures 1 and 2.	 <p>In the case where XXX is partially or not used, the information should be vertically centred.</p>
04	Lower pantograph	Lower pantograph Instruction to the driver for the pantograph to be lowered	

Trackside Board Number	Description applicable to DMI	Description provided for information only	Symbol <sup>a</sup>
05	Pantograph lowered	Pantograph lowered Start of area to be run with lowered pantograph	
06	Raise pantograph	Raise pantograph End of the area to be run with lowered pantograph	
07	Neutral section announcement	Neutral section announcement Instruction for the main power switch to be opened	

Trackside Board Number	Description applicable to DMI	Description provided for information only	Symbol <sup>a</sup>
08	Neutral section	Neutral section Start of area in which the main power switch is open	
09	End of neutral section	End of neutral section Instruction that the main power switch may be closed	
NOTE The thin black edges shown in Table 1 are not part of the signs, but are provided to indicate the edges of the true white borders.			
<sup>a</sup> Dimensions refer to Table 4.			

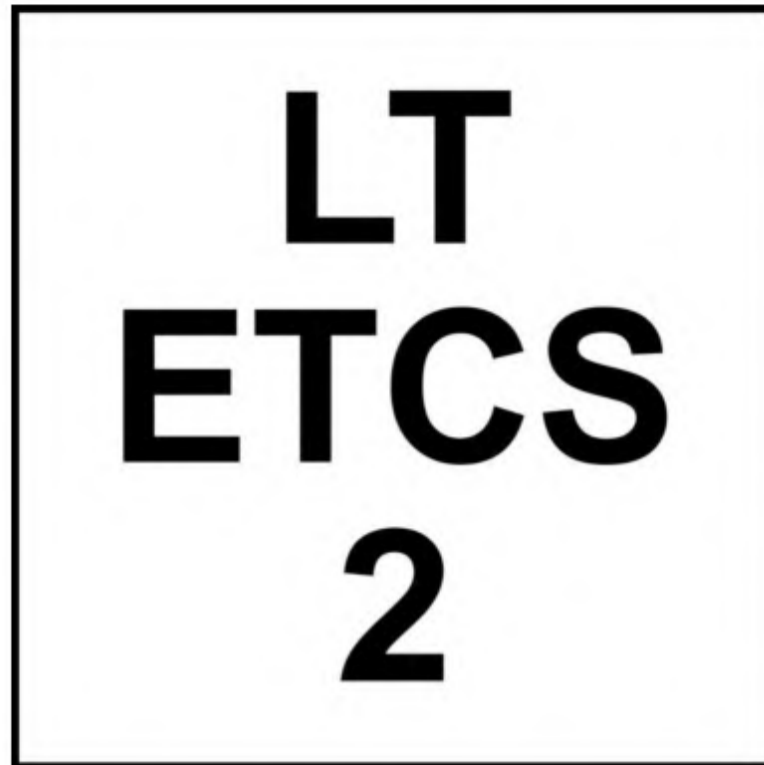


Figure 1 — Example of Trackside Board 03 with one character

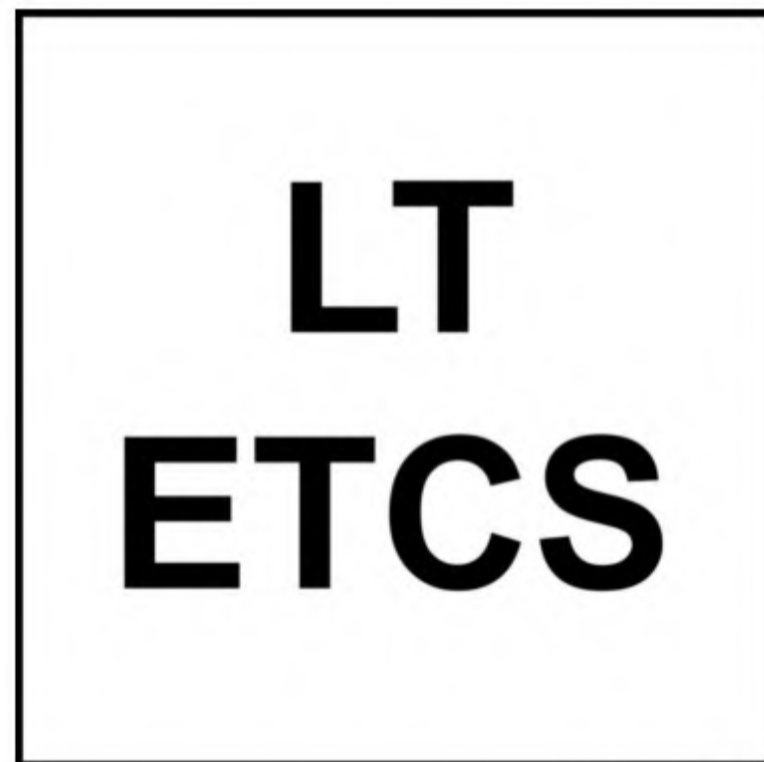


Figure 2 — Example of Trackside Board 03 with no characters, and main information vertically centred

Table 2 — Design of GSM-R trackside board


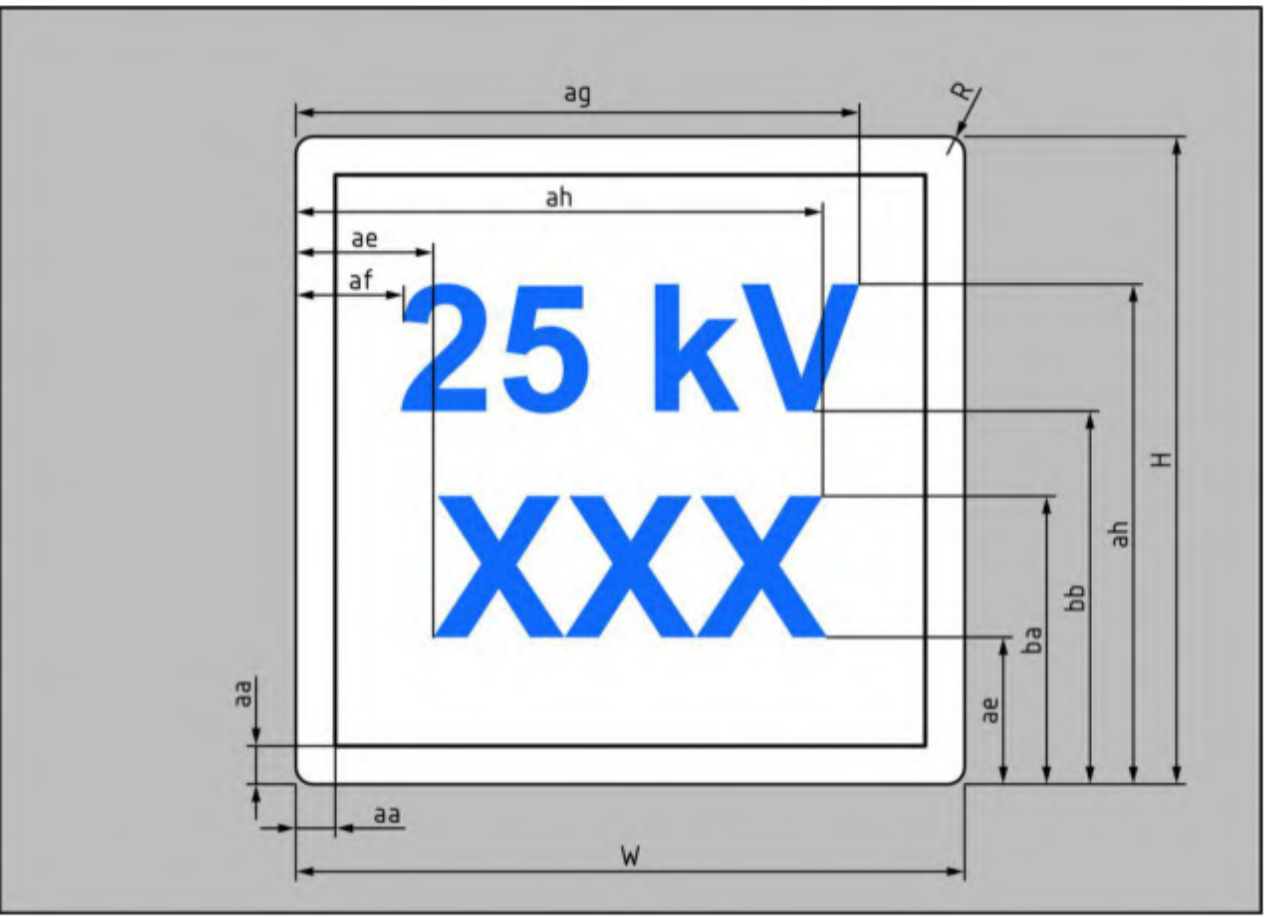
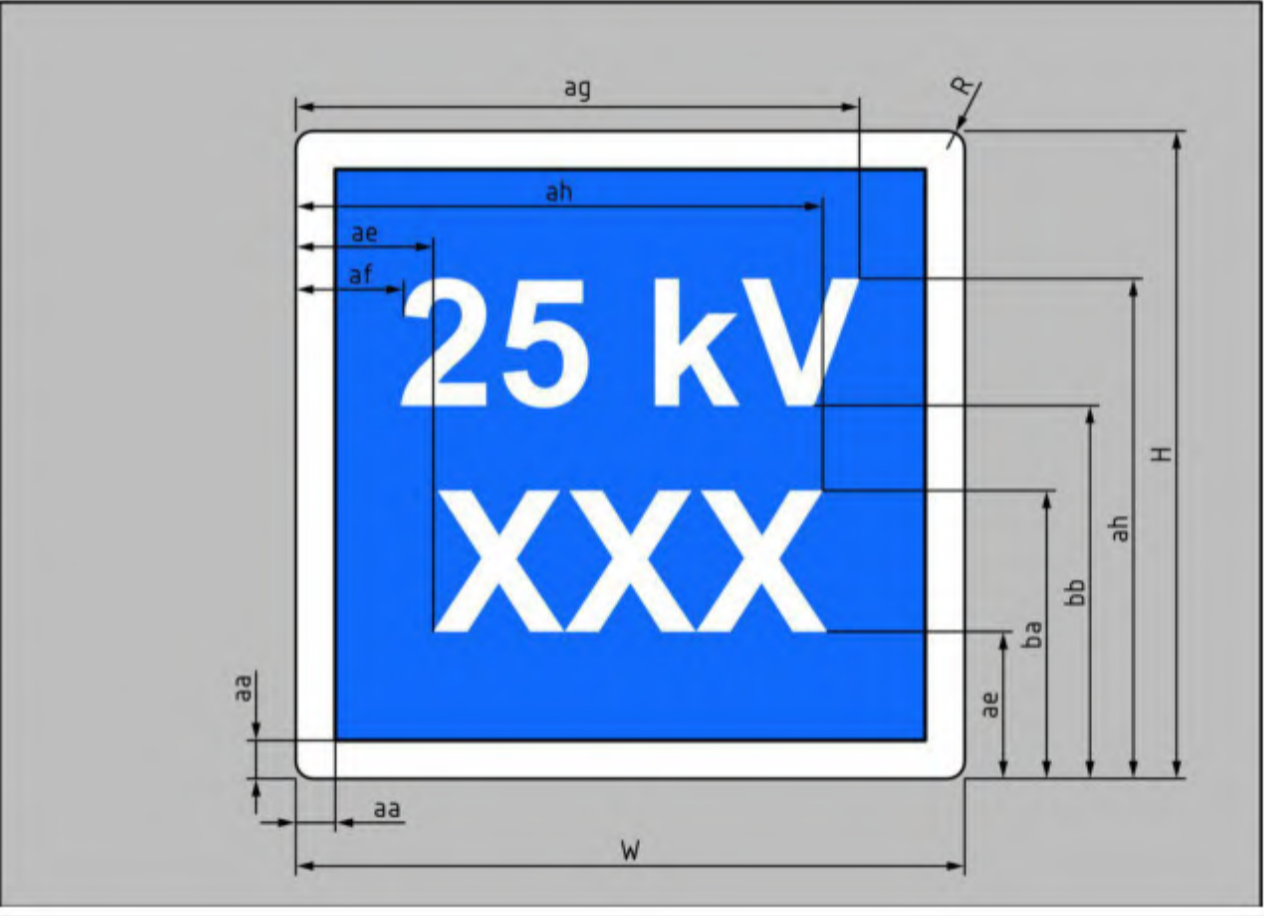
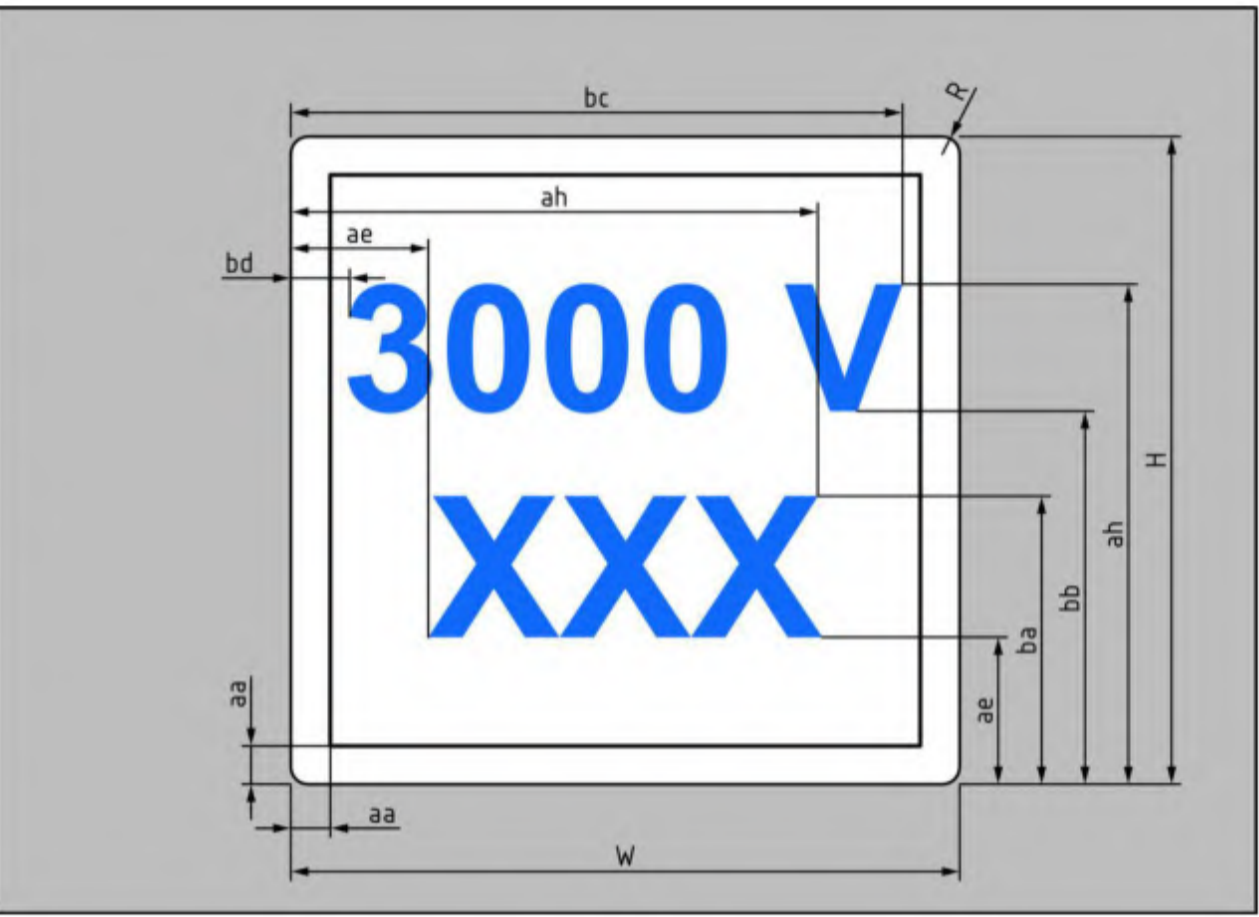
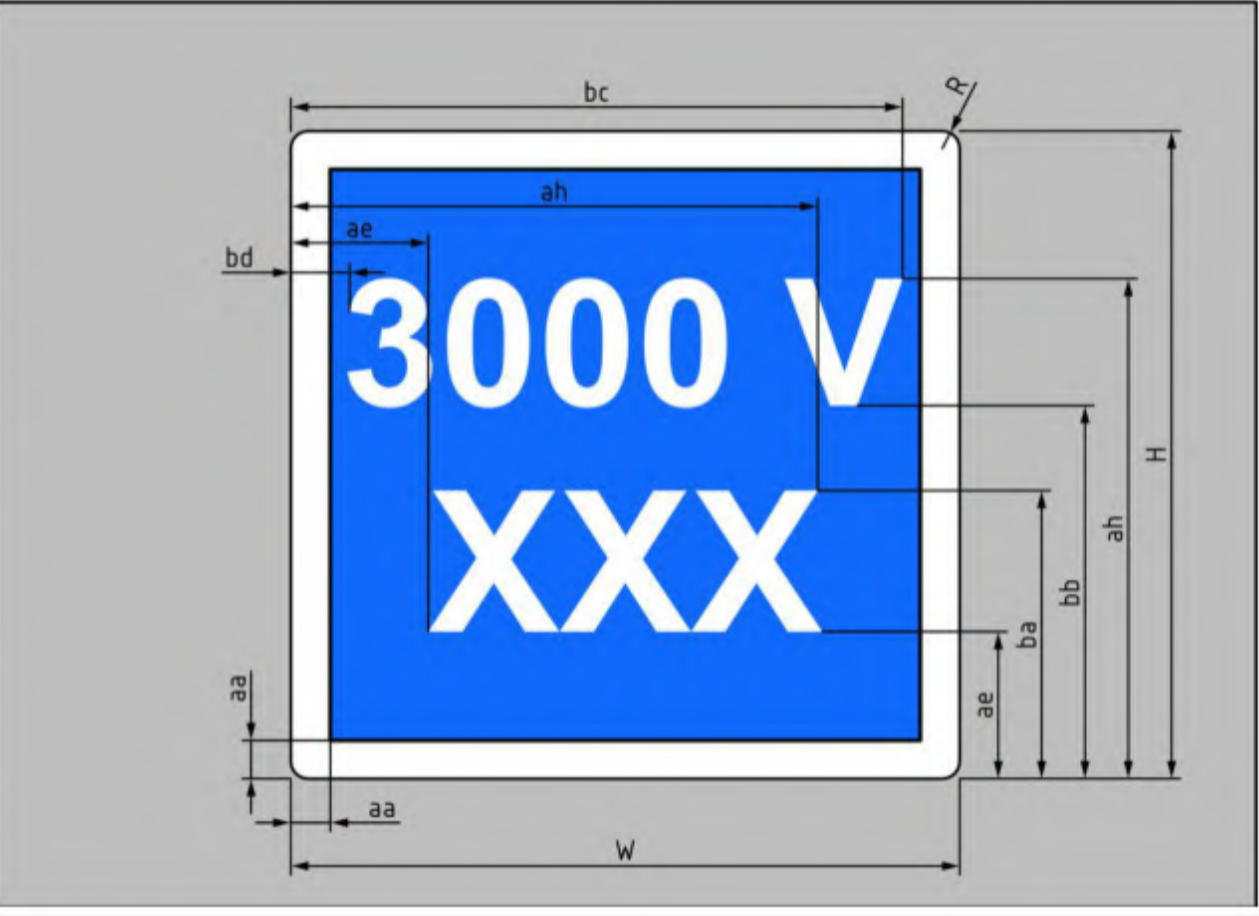
Trackside Board Number	Description	Symbol <sup>a</sup>
10	GSM-R network border marker	
NOTE 1 In the GSM-R network border marker, the letter 'D' represents the example of Germany. Other letters should be used according to the country of use.		
NOTE 2 The thin black edge shown in Table 2 is part of the GSM-R network border sign.		
<sup>a</sup> Dimensions refer to Table 5		

Table 3 — Design of trackside boards for ETCS track conditions

Trackside Board Number	Description applicable to DMI	Description provided for information only	Symbol <sup>a</sup>
11	No traction system fitted announcement	-	
12	No traction system fitted indication	-	

Trackside Board Number	Description applicable to DMI	Description provided for information only	Symbol <sup>a</sup>
13	Traction system AC 25 kV 50 Hz announcement	XXX <sup>b</sup> represents the traction level and may be up to four characters, to be used as required (or not at all). See Figures 3 and 4.	
14	Traction system AC 25 kV 50 Hz indication	XXX <sup>b</sup> represents the traction level and may be up to four characters, to be used as required (or not at all). See Figures 3 and 4.	

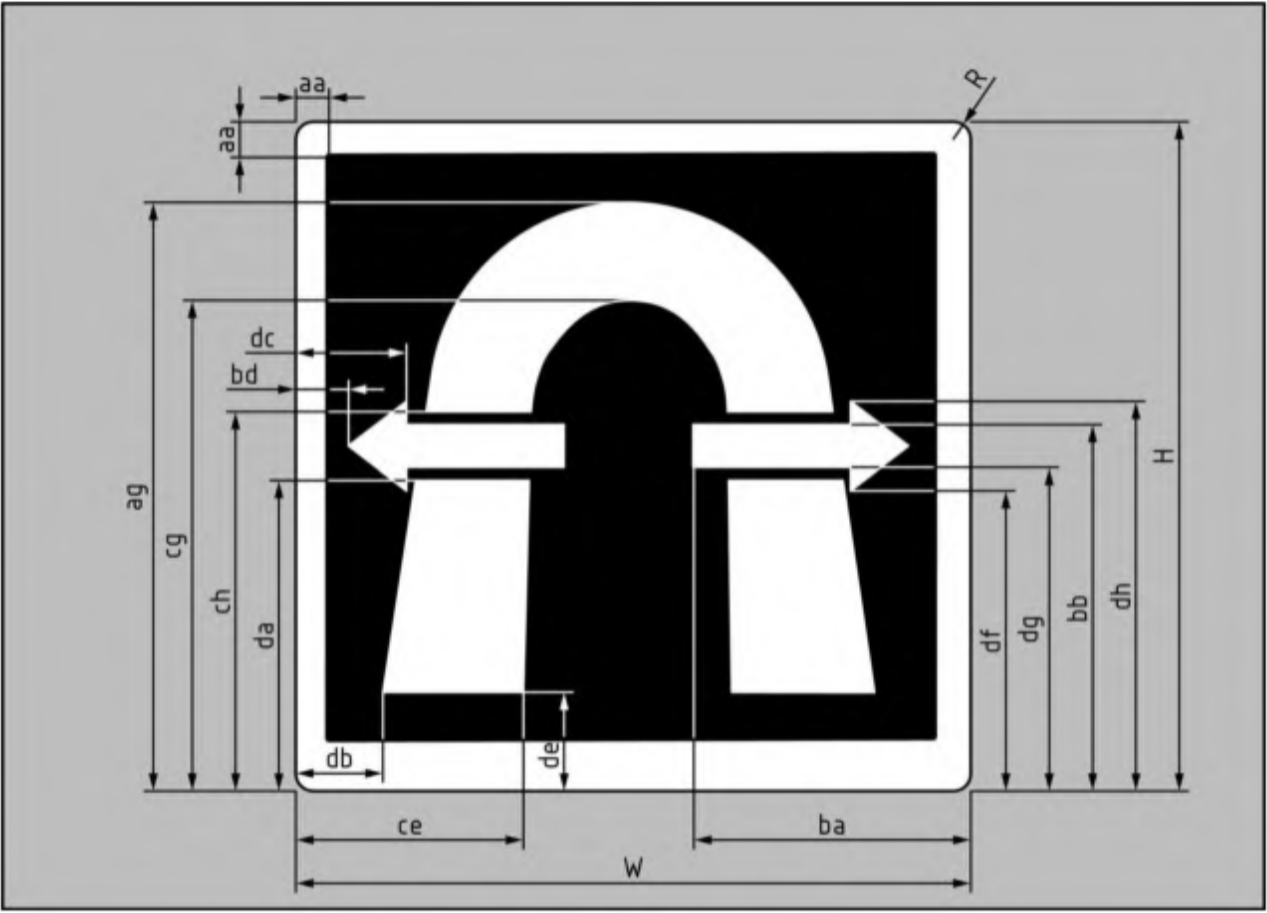
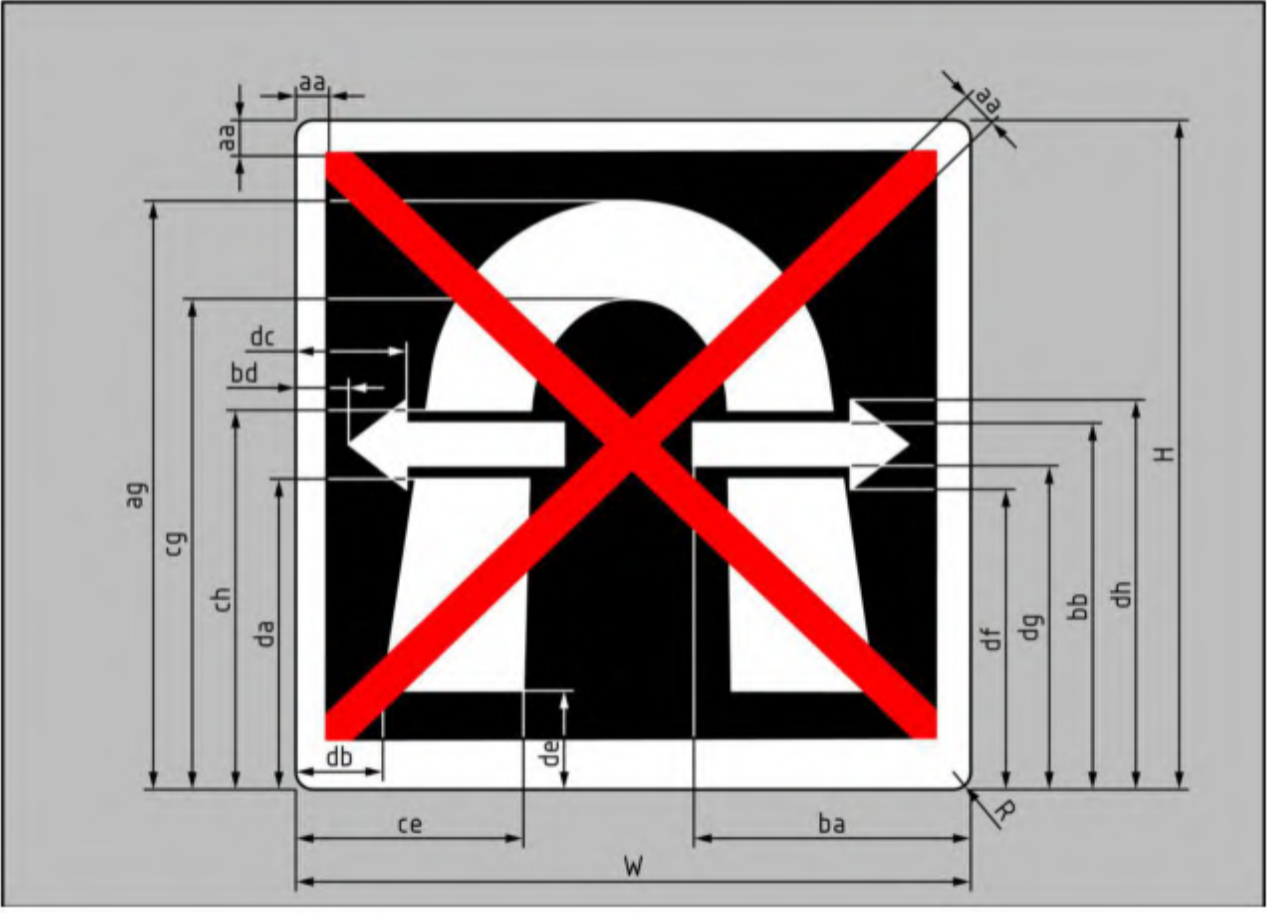
Trackside Board Number	Description applicable to DMI	Description provided for information only	Symbol <sup>a</sup>
15	Traction system AC 15 kV 16,7 Hz announcement	XXX <sup>b</sup> represents the traction level and may be up to four characters, to be used as required (or not at all). See Figures 3 and 4.	
16	Traction system AC 15 kV 16,7 Hz indication	XXX <sup>b</sup> represents the traction level and may be up to four characters, to be used as required (or not at all). See Figures 3 and 4.	

Trackside Board Number	Description applicable to DMI	Description provided for information only	Symbol <sup>a</sup>
17	Traction system DC 3 kV announcement	XXX <sup>b</sup> represents the traction level and may be up to four characters, to be used as required (or not at all). See Figures 3 and 4.	
18	Traction system DC 3 kV indication	XXX <sup>b</sup> represents the traction level and may be up to four characters, to be used as required (or not at all). See Figures 3 and 4.	

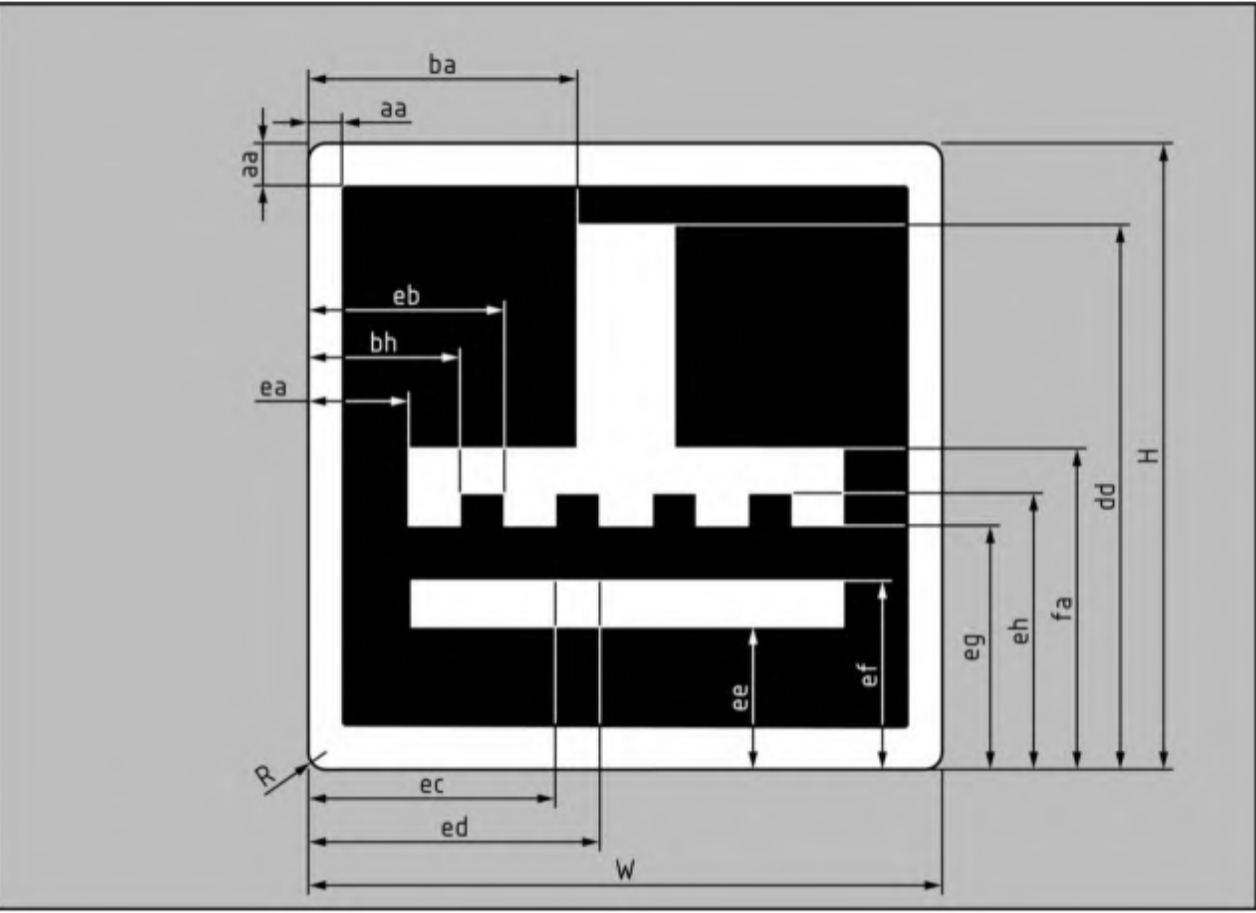
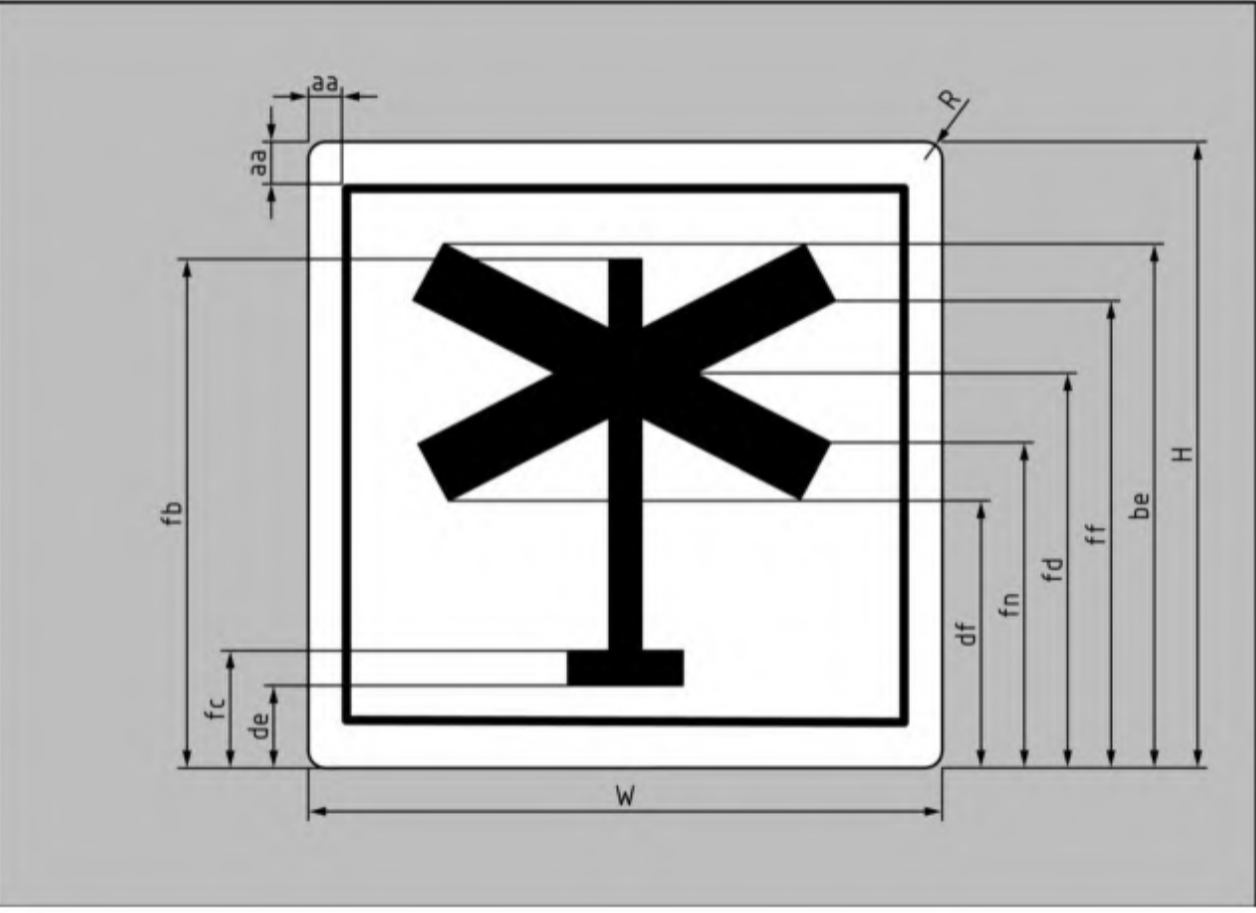
Trackside Board Number	Description applicable to DMI	Description provided for information only	Symbol <sup>a</sup>
19	Traction system DC 1,5 kV announcement	XXX <sup>b</sup> represents the traction level and may be up to four characters, to be used as required (or not at all). See Figures 3 and 4.	
20	Traction system DC 1,5 kV indication	XXX <sup>b</sup> represents the traction level and may be up to four characters, to be used as required (or not at all). See Figures 3 and 4.	

Trackside Board Number	Description applicable to DMI	Description provided for information only	Symbol <sup>a</sup>
21	Traction system DC 600/750 V announcement	XXX <sup>b</sup> represents the traction level and may be up to four characters, to be used as required (or not at all). See Figures 3 and 4.	
22	Traction system DC 600/750 V indication	XXX <sup>b</sup> represents the traction level and may be up to four characters, to be used as required (or not at all). See Figures 3 and 4.	

Trackside Board Number	Description applicable to DMI	Description provided for information only	Symbol <sup>a</sup>
23	Activate the audible warning device (horn) indication	-	
24	Safe stopping area announcement	-	

Trackside Board Number	Description applicable to DMI	Description provided for information only	Symbol <sup>a</sup>
25	Safe stopping area indication for start	-	
26	Safe stopping area indication for end	-	

Trackside Board Number	Description applicable to DMI	Description provided for information only	Symbol <sup>a</sup>
27	Inhibition of special brake announcement	-	
28	Inhibition of special brake indication for start	-	

Trackside Board Number	Description applicable to DMI	Description provided for information only	Symbol <sup>a</sup>
29	Inhibition of special brake indication for revocation	-	
30	level crossing marker	To be used where a train should stop before the level crossing in case of LX failure or LX not protected. Alternative colours are permitted in specific circumstances <sup>c</sup>	

<sup>a</sup>

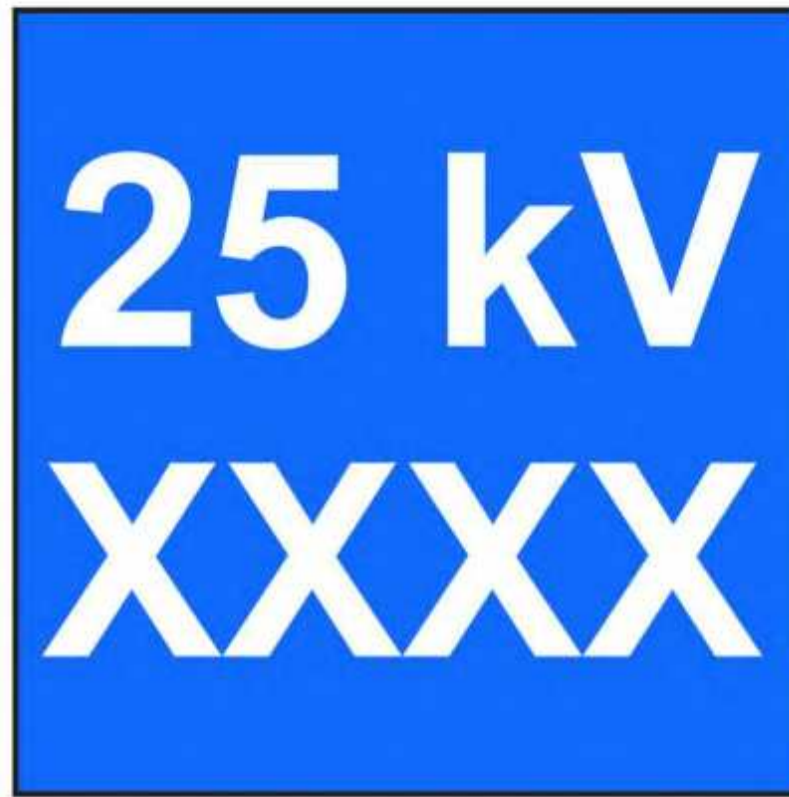
Dimensions refer to Table 6.

<sup>b</sup>

In the case where other than XXX is used, these characters shall be horizontally centred, such that the character height and spacing are preserved.

<sup>c</sup>

With reference to Trackside Board 30, it is permissible, for example in areas where snow is likely, to use a Level Crossing Marker which is black on a yellow background.



**Figure 3 — Example of Trackside Board 13 with four characters**



**Figure 4 — Example of Trackside Board 13 with no characters, and main information vertically centred.**

### 5.2.3 Dimensions

The dimensions of ERTMS trackside boards, with reference to Tables 1, 2 and 3 are specified in Tables 4, 5 and 6 below. The tolerance for each dimension shall be  $\pm 1\%$  or  $\pm 2\text{ mm}$ , whichever is the greater.

In the case of low line speeds and/or structure gauge constraints, it is permissible to use signs within the scope of this standard with height and width less than 500 mm, provided that the dimensions are proportionally the same as in Table 3. Where these signs are used, readability shall be optimized.

In the case of high line speeds, it is permissible to use signs within the scope of this standard with height and width greater than 900 mm, provided that the dimensions are proportionally the same as in Table 4.

Table 4 — Dimensions of ETCS trackside boards

Dimension from Table 1	Value of Dimension, as a fraction of the Height X and Width X (with reference to Table 1)	Example dimensions (mm) for 500mm Board	Example dimensions (mm) for 700mm Board
H	X	500	700
W	X	500	700
R	Minimum 10	Minimum 10	Minimum 10
X2 <sup>a</sup>	0,185 X	93	130
Z	0,020 X	10	14
B	0,040 X	20	28
A1	0,550 X	275	385
A2	0,336 X	168	235
A3	0,329 X	165	230
A4	0,229 X	115	160
A5	0,050 X	25	35
A6	0,500 X	250	350
a	0,080 X	40	56
b	0,760 X	380	532
c	0,220 X	110	154
d	0,350 X	175	245
e	0,341 X	171	239
f	0,499 X	250	349
g	0,156 X	78	109
h	0,194 X	97	136
i	0,380 X	190	266
j	0,084 X	42	59
k	0,440 X	220	308
l	0,261 X	131	183
m	0,397 X	199	278
n	0,114 X	57	80
p	0,596 X	298	417
<sup>a</sup> Spacing between the characters to be optimized for readability.			

**Table 5 — Dimensions of GSM-R trackside boards**

<b>Dimension from Table 2</b>	<b>Value of Dimension, as a fraction of the Height X (with reference to Table 2)</b>	<b>Example dimensions (mm) for 630mm Board</b>	<b>Example dimensions (mm) for 1000mm Board</b>
H	X	630	1000
W	0,700 X	441	700
R	Minimum 10	Minimum 10	Minimum 10
r	0,020 X	13	20
s	0,040 X	25	40
t	0,120 X	76	120
v	0,340 X	214	340
w	0,160 X	101	160
y	0,480 X	302	480
The selection of board size to be based on either the degraded mode speed or the maximum speed in the applicable location and operating condition.			

Table 6 — Dimensions of trackside boards for ETCS Track Conditions

Dimension from Table 3	Value of Dimension, as a fraction of the Height x (with reference to Table 3)	Example dimensions (mm) for 500mm Board	Example dimensions (mm) for 700mm Board
H	x	500	700
W	x	500	700
R	Minimum 10	Minimum 10	Minimum 10
aa	0,050 x	25	35
ab	0,500 x	250	350
ac	0,340 x	170	238
ad	0,260 x	130	182
ae	0,200 x	100	140
af	0,120 x	60	84
ag	0,880 x	440	616
ah	0,800 x	400	560
ba	0,400 x	200	280
bb	0,550 x	275	385
bc	0,920 x	460	644
bd	0,080 x	40	56
be	0,850 x	425	595
bf	0,650 x	325	455
bg	0,560 x	280	392
bh	0,220 x	110	154
ca	0,100 x	50	70
cc	0,350 x	175	245
cd	0,300 x	150	210
ce	0,330 x	165	231
cf	0,360 x	180	252
cg	0,740 x	370	518
ch	0,570 x	285	399
da	0,470 x	235	329
db	0,130 x	65	91
dc	0,160 x	80	112
dd	0,890 x	445	623
de	0,150 x	75	105

Dimension from Table 3	Value of Dimension, as a fraction of the Height x (with reference to Table 3)	Example dimensions (mm) for 500mm Board	Example dimensions (mm) for 700mm Board
df	0,450 x	225	315
dg	0,490 x	245	343
dh	0,590 x	295	413
ea	0,140 x	70	98
eb	0,290 x	145	203
ec	0,370 x	185	259
ed	0,440 x	220	308
ee	0,240 x	120	168
ef	0,310 x	155	217
eg	0,390 x	195	273
eh	0,460 x	230	322
fa	0,530 x	265	371
fb	0,820 x	410	574
fc	0,210 x	105	147
fd	0,640 x	320	448
fe	0,530 x	265	371
ff	0,760 x	380	532
The selection of board size to be based on either the degraded mode speed or the maximum speed in the applicable location and operating condition.			

### 5.3 Optical properties

#### 5.3.1 Optical properties of trackside boards

The ERTMS trackside boards shall comply with the following optical properties:

- white, in accordance with EN 12899-1:2007, colour as contained in Table 2 and minimum values of co-efficients of retro-reflection as Table 4
- blue, in accordance with EN 12899-1:2007, colour as contained in Table 2 and minimum values of co-efficients of retro-reflection as Table 4
- red, in accordance with EN 12899-1:2007, colour as contained in Table 2 and minimum values of co-efficients of retro-reflection as Table 4
- yellow, in accordance with EN 12899-1:2007, colour as contained in Table 2 and minimum values of co-efficients of retro-reflection as Table 4
- non-reflective black, in accordance with EN 12899-1:2007, Table 16

NOTE The above requirements are compatible with the optical properties of train head lamps manufactured in accordance with EN 15153-1.

### **5.3.2 Optical properties of the rear of trackside boards**

The rear surfaces of ERTMS trackside board shall be specified as agreed between contractors.

A recommended rear surface is uniform, non-reflective grey in accordance with the chromaticity requirements of EN 12899-1:2007, Table 16 and luminance factor  $\beta \leq 0,4$ .

### **5.4 Durability in environmental conditions**

Trackside boards shall be designed to be durable in railway environments. In order that the boards are fit for purpose, the requirements of EN 50125-3:2003 shall apply for ambient temperature, humidity, resistance to atmospheric pollutants (including sand and salt), and wind loading.

The materials and surface should be resistant to damage through vandalism. This may be achieved for example by the use of anti-graffiti transparent films, cleaning of the surface or replacement of the sign.

### **5.5 Maintenance requirements**

The service life and maintenance requirements for the trackside boards shall be agreed between contractors. The maintenance interval shall take into account the environmental conditions and positioning of the boards relative to the running rails, such that the performance of the boards remains acceptable, when viewed in normal operational conditions.

### **5.6 Location and alignment of trackside boards**

Requirements for the location and sighting requirements are not within the scope of this document. The sighting process needs to be implemented in accordance with national rules.

NOTE 1 Driver forward visibility requirements are set out in EN 16186-1.

The location of trackside boards should take into account the existing infrastructure. Trackside boards should not detract from the sighting or readability of existing signals, indicators or signs. The risk of clutter should be minimized.

NOTE 2 Clearance distances are defined by kinematic profiles according to EN 15273-1.

The alignment of trackside boards may involve rotation in order to optimize readability for curved approaches.

## **6 Test methods**

### **6.1 Test samples**

Where testing is required, as a minimum one sample of each design of trackside board from the type-test batch shall be tested as specified in 6.2 to 6.4.

### **6.2 Test for dimensions**

Dimensions shall be verified by inspection and analysis of drawings, with reference to Tables 4, 5 and 6.

### **6.3 Test for optical properties**

In the case of previously tested materials of the proposed type, where this has been shown by a CE marking process or equivalent to have the required properties, then the CE marking shall be deemed to satisfy the requirements and no test of optical properties is required.

In the case of new materials or previously untested materials, the chromaticities and co-efficients of retro-reflectivity shall be measured according to the methods specified in EN 12899-1:2007.

### **6.4 Test for environmental properties**

In the case of previously tested materials of the proposed type, where this has been shown by a CE marking process or equivalent to have the required properties, then the CE marking shall be deemed to satisfy the requirements and no test of environmental properties is required.

In the case of new materials or previously untested materials, durability shall be tested as set out in 5.4.

## Annex ZA (informative)

### Relationship between this European Standard and the Essential Requirements of EU Directive (EU) 2016/797 aimed to be covered

This European Standard has been prepared under Commission implementing decision C(2023)1057 of 20.2.2023 on a standardisation request to the European Committee for Standardisation and the European Committee for Electrotechnical Standardisation as regards products in support of Directive (EU) 2016/797 of the European Parliament and of the Council (M/591) to provide one voluntary means of conforming to (parts of) Essential Requirements of Directive (EU) 2016/797 of the European Parliament and of the Council of 11 May 2016 on interoperability of the rail system (recast) as specified in the relevant technical specifications for interoperability (TSI).

Once this standard is cited in the Official Journal of the European Union under that Directive, compliance with the normative clauses of this standard given in Table ZA.1 for operation and traffic management subsystem confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding Essential Requirements of that Directive as specified in the technical specifications for interoperability (TSI), and associated EFTA regulations.

**Table ZA.1 — Correspondence between this European Standard, Commission Implementing Regulation (EU) 2019/773 of 16 May 2019 on the technical specification for interoperability relating to the operation and traffic management subsystem of the rail system within the European Union and repealing Decision 2012/757/EU\* and Directive (EU) 2016/797**

Essential Requirements of Directive (EU) 2016/797	Clauses of the Annex to the Technical Specification for Interoperability (TSI)	Clause/ subclauses of this European Standard	Comments
Section 3 of the Annex to the TSI indicates the correspondence between the TSI clauses and the Essential Requirements of Directive (EU) 2016/797	4.2.2.8 Requirements for signal and lineside marker sighting	5.2 Physical requirements for ERTMS trackside boards 5.4 Durability in environmental conditions 5.5 Maintenance requirements	
	Appendix A, Clause 6.21 Changing the electric power supply	5.2.2 Physical requirements for ERTMS trackside boards – design 5.2.3 Dimensions	
	Appendix A, Clause 6.28 Sounding the audible warning device	5.2.2 Physical requirements for ERTMS trackside boards - design 5.2.3 Dimensions	
	Appendix A, 6.35 Stopping in a safe area	5.2.2 Physical requirements for ERTMS trackside boards - design 5.2.3 Dimensions	

**\* As amended by Commission Implementing Regulation (EU) 2020/778, Commission Implementing Regulation (EU) 2021/2238 and Commission Implementing Regulation (EU) 2023/1693**

NOTE The Technical Specification for Interoperability (TSI) can refer to other clauses of this standard making the application of those clauses mandatory.

**WARNING 1** — Presumption of conformity stays valid only as long as a reference to this European Standard is maintained in the list published in the Official Journal of the European Union. Users of this standard should consult frequently the latest list published in the Official Journal of the European Union.

**WARNING 2** — Other Union legislation may be applicable to the products falling within the scope of this standard.

## Bibliography

- [1] EN 16186-1:2014+A1:2018, *Railway applications - Driver's cab - Part 1: Anthropometric data and visibility*
- [2] EN 15153-1:2020, *Railway applications - External visible and audible warning devices - Part 1: Head, marker and tail lamps for heavy rail*
- [3] EN 15273-1:2013+A1:2016, *Railway applications - Gauges - Part 1: General - Common rules for infrastructure and rolling stock*
- [4] CLC/TR 50511:2007, *Railway applications - Communications, signalling and processing systems - ERTMS/ETCS - External signalling for lines equipped with ERTMS/ETCS Level 2*
- [5] GI/RT 7033, *Issue 4, Railway Group Standard — Lineside operational safety signs*<sup>2</sup>
- [6] ERA ERTMS 015560, *ETCS Driver Machine Interface*
- [7] CCS TSI, *Technical specification for interoperability relating to the control-command and signalling subsystems of the trans-European rail system*
- [8] EEIG 06E068 Version 2, *ETCS marker board definition*

---

<sup>2</sup> To be viewed free of charge on the RGS website (<https://www.rssb.co.uk/en/standards-catalogue>).

