TECHNICAL SPECIFICATION **CLC/TS 50459-1**

SPECIFICATION TECHNIQUE

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English version

Railway applications – Communication, signalling and processing systems – European Rail Traffic Management System – Driver-Machine Interface Part 1: Ergonomic principles for the presentation of ERTMS/ETCS/GSM-R information

Applications ferroviaires – Systèmes de signalisation, de télécommunications et de traitement – Système européen de gestion du trafic ferroviaire – Interface de conduite Partie 1: Principes ergonomiques pour la présentation des informations ERTMS/ETCS/GSM-R

Bahnanwendungen – Telekommunikationstechnik, Signaltechnik und Datenverarbeitungssysteme – Europäisches Leitsystem für den Schienenverkehr – Mensch-Maschine Schnittstelle Teil 1: Ergonomische Prinzipien für die Darstellung von ERTMS/ETCS/GSM-R Informationen

This Technical Specification was approved by CENELEC on 2005-05-07.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This Technical Specification was prepared by SC 9XA, Communication, signalling and processing systems, of Technical Committee CENELEC TC 9X, Electrical and electronic applications for railways.

The text of the draft was submitted to the vote and was approved by CENELEC as CLC/TS 50459-1 on 2005-05-07.

The following date was fixed:

– latest date by which the existence of the CLC/TS has to be announced at national level (doa) 2005-11-07

This Technical Specification has been prepared under mandates M/024 and M/334 given to CENELEC by the European Commission and the European Free Trade Association.

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Introduction

This Technical Specification forms Part 1 of a series, the other parts being:

CLC/TS 50459-2 for ergonomic arrangements of ERTMS/ETCS information

CLC/TS 50459-3 for ergonomic arrangements of ERTMS/GSM-R information

CLC/TS 50459-4 for data entry procedure for ERTMS/ETCS/GSM-R

CLC/TS 50459-5 for symbols for ERTMS/ETCS/GSM-R

CLC/TS 50459-6 for audible information for ERTMS/ETCS/GSM-R

These Technical Specifications contain the ergonomic arrangements of information on the ERTMS DMI Display. Most items are illustrated with an example.

1 Scope

This Technical Specification describes from an ergonomic point of view how ERTMS information shall be arranged and displayed. This Technical Specification describes more ergonomic details than currently provided by the ERTMS/ETCS/GSM-R specifications.

This Technical Specification defines the ergonomics for the Driver-Machine Interface (DMI) for the ERTMS/ETCS Train Control System, and for the integrated ERTMS/GSM-R Train Control and Train Radio Systems, and for the stand alone ERTMS/GSM-R Train Radio Systems and for other technical systems currently provided on the rolling stock.

The ergonomics covers the

— general arrangements (dialogue structure, sequences, layout philosophy, colour philosophy),

— symbols,

— audible information,

— data entry arrangements.

The aims of the ERTMS/ETCS/GSM-R Train Control and Train Radio Systems are standardised systems facilitating interoperable movement of trains and permitting economies of scale in procurement and operations. The objective of this Technical Specification is to define the minimum requirements on the DMI that are necessary to enable these objectives to be achieved. Hence the Technical Specification is limited to ergonomic considerations and does not define the technology to be used for the implementation.

The reasons for defining the ergonomics of the DMI are as follows:

— achieving harmonised and coherent presentation for ERTMS/ETCS and STM information. Given the large number of STM's requiring the use the ERTMS/ETCS DMI, only a harmonised approach is feasible;

— defining Driver-Machine Interface ergonomics that is compatible with agreed interoperable ERTMS specifications;

— to reduce the risk of incorrect operation by a driver working with different trains fitted with ERTMS/ETCS and ERTMS/GSM-R;

— facilitating train operation with a unified ergonomics, hence reducing the cost of driver training.

This Technical Specification is applicable on all trains fitted with the ERTMS/ETCS and also for trains fitted with train radio (GSM-R) DMI.

The scope of Part 1 of the Technical Specification CLC/TS 50459 series is to define ergonomic principles for the interface between the driver and ERTMS/ETCS/GSM-R.

This specification gives guidelines how to implement different technology (soft keys, touch screen device, LCD, cathode tube, etc.)

2 Normative references

The following referenced documents are indispensable for the application 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.

Council Directive 96/48/EC of 23 July 1996 on the interoperability of the trans-European high-speed rail system, Official Journal L 235 , 17/09/1996 P. 0006 – 0024

CLC/TS 50459-2, *Railways applications – Communication, signalling and processing systems - European Rail Traffic Management System - Driver-Machine Interface - Part 2: Ergonomic arrangements of ERTMS/ETCS information*

CLC/TS 50459-3, *Railways applications – Communication, signalling and processing systems - European Rail Traffic Management System - Driver-Machine Interface – Part 3: Ergonomic arrangement of ERTMS/GSM-R information*

CLC/TS 50459-4, *Railways applications – Communication, signalling and processing systems - European Rail Traffic Management System - Driver-Machine Interface - Part 4: Data entry for the ERTMS/ETCS/GSM-R systems*

CLC/TS 50459-5, *Railways applications – Communication, signalling and processing systems - European Rail Traffic Management System - Driver-Machine Interface - Part 5: Symbols*

CLC/TS 50459-6, *Railways applications – Communication, signalling and processing systems - European Rail Traffic Management System - Driver-Machine Interface - Part 6: Audible information*

UIC 651, *Layout of driver's cabs in locomotives, railcars, multiple-unit trains and driving trailers*

3 Terms, definitions and abbreviated terms

3.1 Definitions

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

3.1.1
activated
state following a driver action

3.1.2
beyond
track location according to Figure 1

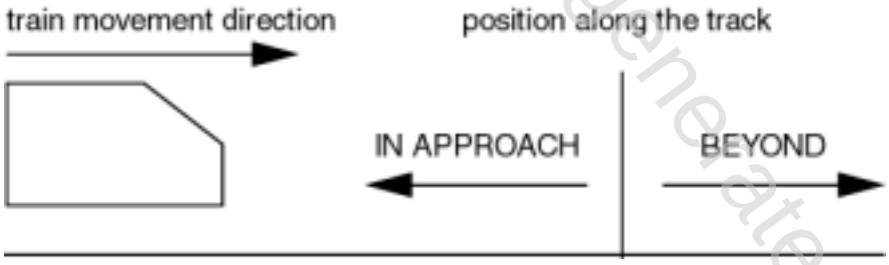

Figure 1 — In approach and beyond

3.1.3
button
object shown to the driver through which a driver action is possible. It is composed of a label and an associated sensitive area

NOTE The sensitive area of a button can be accessed via a touch screen area or via a hard key, depending on the chosen technology.

3.1.4
cell
basic unit to define the shape of DMI objects and the proportions of areas

NOTE The size of the cell is defined in 4.3.1