



BSI Standards Publication

**Railway applications —
Communication, signalling
and processing systems —
European Rail Traffic
Management System —
Driver-Machine Interface**

Part 3: Ergonomic arrangements of
non ETCS information

National foreword

This Published Document is the UK implementation of CLC/TS 50459-3:2016. It supersedes DD CLC/TS 50459-3:2005 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee GEL/9, Railway Electrotechnical Applications, to Subcommittee GEL/9/1, Railway Electrotechnical Applications - Signalling and communications.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2016.

Published by BSI Standards Limited 2016

ISBN 978 0 580 84436 2

ICS 03.220.30; 13.180; 35.240.60; 45.060.01

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 31 January 2016.

Amendments/corrigenda issued since publication

Date	Text affected
-------------	----------------------

TECHNICAL SPECIFICATION
 SPÉCIFICATION TECHNIQUE
 TECHNISCHE SPEZIFIKATION

CLC/TS 50459-3

January 2016

ICS 03.220.30; 13.180; 35.240.60

Supersedes CLC/TS 50459-3:2005

English Version

Railway applications - Communication, signalling and processing systems - European Rail Traffic Management System - Driver-Machine Interface - Part 3: Ergonomic arrangements of non ETCS information

Applications ferroviaires - Systèmes de signalisation, de télécommunications et de traitement - Système européen de gestion du trafic ferroviaire - Interface de conduite - Partie 3: Principes généraux pour la présentation des informations non ETCS

Bahnanwendungen - Telekommunikationstechnik, Signaltechnik und Datenverarbeitungssysteme - Europäisches Leitsystem für den Schienenverkehr - Mensch-Maschine Schnittstelle - Teil 3: Ergonomische Anordnung der Nicht-ETCS Informationen

This Technical Specification was approved by CENELEC on 2015-12-07.

CENELEC members are required to announce the existence of this TS in the same way as for an EN and to make the TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword	7
Introduction	8
1 Scope	9
2 Normative references	9
3 Terms, definitions and abbreviated terms	9
3.1 Terms and definitions	9
3.2 Abbreviated terms	10
4 General principles	10
4.1 Purpose of document	10
4.1.1 General.....	10
4.1.2 Ergonomic arrangements of areas of the ETCS layout.....	11
4.1.3 ETCS objects.....	12
4.1.4 Non ETCS objects.....	12
4.2 Audible information for non ETCS systems.....	12
4.3 Data entry	12
5 Non ETCS symbols	13
5.1 General requirements for unified DMI service.....	13
5.2 Symbols for other train functions.....	13
Annex A (informative) Integration of NTC and/or other on-board systems	14
A.1 Usage of screen areas	14
A.2 LZB/PZB NTC	14
A.2.1 Scope and field of specification	14
A.2.2 Overview	14
A.2.3 Positioning onto the grid array	16
A.2.3.1 Area description	16
A.2.3.2 Speed and distance monitoring – supervision status	16
A.2.4 ETCS and LZB/PZB information shown on a LZB/PZB default window	17
A.2.4.1 Introduction	17
A.2.4.2 ETCS objects	17
A.2.4.3 NTC objects	17
A.2.4.3.1 General	17
A.2.4.3.2 Indicators PLZB_C2/3/4/5/6	17
A.2.4.3.3 Supervision information	17
A.2.4.3.3.1 Current train speed pointer	17
A.2.4.3.3.2 Vperm of LZB	17
A.2.4.3.3.3 Vtarget of LZB	17
A.2.4.3.3.4 Vperm of ASC	17

A.2.4.3.3.5	Vperm of 'Cruise Control'	18
A.2.5	LZB/PZB sub-level windows	18
A.2.5.1	Introduction	18
A.2.5.2	Menu windows	19
A.2.5.2.1	LZB/PZB data entry windows)	19
A.2.5.2.2	LZB/PZB data validation windows	20
A.2.5.2.3	LZB/PZB data view window	21
A.2.6	LZB/PZB symbols	22
A.2.6.1	Level symbols	22
A.2.6.2	Mode symbols	22
A.2.6.3	Status symbols	22
A.2.6.4	Orders and announcement of track condition symbols	27
A.2.6.5	Planning information symbols	27
A.2.6.6	Navigation symbols	27
A.2.6.7	Supervision symbols	27
A.2.6.8	Driver request symbols	27
A.2.7	LZB/PZB audible information	28
A.2.7.1	General	28
A.2.7.2	PLZB_S1 - SCHNARRE	28
A.2.7.3	PLZB_S2 - HUPE	28
A.2.7.4	PLZB_S3 - EMERGENCY_BRAKE_INTERVENTION	28
A.2.8	LZB/PZB List of system status messages	28
A.3	AWS/TPWS NTC with DAS/ATO	28
A.3.1	Scope and field of specification	28
A.3.2	Overview	29
A.3.3	Area description	30
A.3.4	ETCS and AWS/TPWS information shown on a AWS/TPWS default window	31
A.3.4.1	Introduction	31
A.3.4.2	ETCS objects	32
A.3.4.3	Non ETCS Objects	32
A.3.4.3.1	General	32
A.3.4.3.2	Indicators TPWS_C2/3/4/5/6 and TPWS_D20	32
A.3.4.3.3	Buttons	32
A.3.5	AWS/TPWS sub-level windows	32
A.3.5.1	Introduction	32
A.3.5.2	AWS/TPWS window	33
A.3.6	AWS/TPWS symbols	34
A.3.6.1	Level symbols	34

A.3.6.2 AWS/TPWS mode symbols	34
A.3.6.3 AWS/TPWS status symbols	36
A.3.6.4 ATO/DAS mode symbols	38
A.3.6.5 Planning information symbols	40
A.3.6.6 Driver request symbols.....	40
A.3.7 Audible information.....	40
A.3.8 AWS/TPWS list of system status messages	40
A.4 ATC2	41
A.4.1 Scope and field of specification	41
A.4.2 Overview.....	41
A.4.3 Area description	42
A.4.4 ATC2 sub-level windows	43
A.4.4.1 Introduction.....	43
A.4.4.2 NTC objects.....	43
A.5 SCMT.....	43
A.5.1 Scope and field of specification	43
A.5.2 Overview.....	44
A.5.3 Area description	44
A.5.4 ETCS and SCMT Information shown on an ETCS default window	46
A.5.5 SCMT Sub-Level Windows	46
A.5.5.1 Introduction.....	46
A.5.5.2 ETCS objects	46
A.5.5.3 NTC objects.....	46
A.5.5.4 SCMT window	46
A.5.5.5 SCMT VMC data entry window.....	47
A.5.5.6 SCMT OM window	48
A.5.5.7 SCMT ATTO window	49
A.5.5.8 SCMT TRIP window	50
A.5.5.9 SCMT announcement window	51
A.5.6 SCMT symbols.....	52
A.5.6.1 Level symbols.....	52
A.5.6.2 Mode symbols.....	53
A.5.6.3 Touch key symbols	57
A.5.6.4 Orders and announcements.....	58
A.5.6.5 Planning information symbols.....	58
A.5.6.6 Navigation symbols.....	59
A.5.6.7 Settings symbols.....	59
A.5.6.8 Driver request symbols.....	59

A.5.7	SCMT audible information	60
A.5.8	SCMT List of system status messages	60
A.6	SHP	60
A.6.1	Scope and field of specification	60
A.6.2	Overview	61
A.6.3	Area description	61
A.6.4	ETCS and SHP information shown on a SHP default window	62
A.6.4.1	ETCS objects	62
A.6.4.2	NTC objects	62
A.6.4.2.1	General	62
A.6.4.2.2	Indicators	62
A.6.5	SHP sub-level windows	62
A.6.5.1	Introduction	62
A.6.5.2	SHP default window	63
A.6.6	SHP symbols	63
A.6.6.1	Level symbols	63
A.6.6.2	Mode symbols	64
A.6.6.3	Status symbols	64
A.6.6.4	Orders and announcement of Track Condition Symbols	65
A.6.6.5	Planning information symbols	65
A.6.6.6	Driver Request symbols	65
A.7	JKV	65
A.7.1	Scope and field of specification	65
A.7.2	Overview	66
A.7.3	Area description	67
Annex B (informative)	Sounds for NTC and/or other on-board systems	69
B.1	General	69
B.2	Other train functions	69
B.2.1	S9 - Driver activity warning	69
B.3	NTC	70
B.3.1	LZB/PZB audible information	70
B.3.1.1	PLZB_S1 - SCHNARRE	70
B.3.1.2	PLZB_S2 - HUPE	71
B.3.1.3	PLZB_S3 - EMERGENCY_BRAKE_INTERVENTION	73
B.3.2	AWS/TPWS audible information	73
B.3.3	ATC2 audible information	73
B.3.4	SHP audible information	73
B.3.5	SCMT audible information	73

B.3.6 JKV audible information	73
Bibliography.....	74

European foreword

This document (CLC/TS 50459-3:2016) has been prepared by CLC/SC 9XA “Communication, signalling and processing systems”, of Technical Committee CLC/TC 9X “Electrical and electronic applications for railways”.

This document supersedes CLC/TS 50459-3:2005.

The main changes with respect to the previous edition are listed below:

- Update general principles for the presentation of non ETCS information correlated with ERA document ERA_ERTMS_015560.
- Update ergonomic arrangements with prEN 16186 series.

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

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.

Introduction

This Technical Specification should be read in conjunction with ERA_ERTMS_015560:2014 "ETCS Driver Machine Interface" and prEN 16186 series, "Railway applications — Driver's Cab".

This Technical Specification is Part 3 of a series with the following parts:

CLC/TS 50459-1 General principles for the presentation of ERTMS/ETCS/GSM-R information

CLC/TS 50459-2 Ergonomic arrangements of ERTMS/GSM-R information

CLC/TS 50459-3 Ergonomic arrangements of non ETCS information

This part of this Technical Specification contains the ergonomic arrangements of non ETCS information. Annex A of this part shows examples of existing NTC DMI layouts.

Annex B of this part lists the sound examples for NTC and other train functions (not exhaustive).

1 Scope

This Technical Specification describes from an ergonomic point of view how non ETCS information are arranged and displayed on the CCD. More specifically, it covers information that is not within the scope of ERA document ERA_ERTMS_015560.

This Technical Specification describes two possible technologies for implementing the ETCS DMI namely touch screen and soft key.

National systems not integrated within ETCS DMI are not within the scope of this specification.

Redundancy concepts are not within the scope of this document.

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 16186-3:2014, *Railway applications — Driver's cab — Part 3: Design of displays*

CLC/TS 50459-1:2015, *Railways applications – Communication, signalling and processing systems – European Rail Traffic Management System – Driver-Machine Interface – Part 1: General principles for the presentation of ERTMS/ETCS/GSM-R information*

EUROPEAN RAILWAY AGENCY - ERTMS/ETCS - ETCS Driver Machine Interface - Reference: ERA_ERTMS_015560 - Version 3.4.0 - 2014-05-12

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in CLC/TS 50459-1 and the following apply.

3.1.1

ETCS DMI

CCD that allows communication between ETCS on-board equipment and the driver

3.1.2

ETCS DMI default window

total image display area with the allocation of objects, text messages and buttons as described in ERA ERTMS 015560 chapter 8 and 9

3.1.3

NTC default window

a NTC default window is shown in NTC operation (Level NTC, modes SN or NL)

Note 1 to entry: The layout of a NTC default window may differ to an ETCS default window.