

STN	Elektronické zariadenia pre železnice. Palubný systém na záznam jazdných údajov. Časť 2: Skúšanie zhody.	STN EN 62625-2 33 3556
------------	---	--

Electronic railway equipment - On board driving data recording system - Part 2: Conformity testing

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/17

Obsahuje: EN 62625-2:2016, IEC 62625-2:2016

124448

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2017
Podľa zákona č. 264/1999 Z. z. o technických požiadavkách na výrobky a o posudzovaní zhody a o zmene a doplnení niektorých zákonov v znení neskorších predpisov sa slovenská technická norma a časti slovenskej technickej normy môžu rozmnožovať alebo rozširovať len so súhlasom slovenského národného normalizačného orgánu.

EUROPEAN STANDARD

EN 62625-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2016

ICS 45.060

English Version

**Electronic railway equipment - On board driving data recording system - Part 2: Conformity testing
(IEC 62625-2:2016)**

Matériel électronique ferroviaire - Système embarqué
d'enregistrement de données de conduite - Partie 2: Essais
de conformité
(IEC 62625-2:2016)

Elektronische Betriebsmittel für Bahnen - Bordsystem zur
Fahrdatenaufzeichnung - Teil 2: Konformitätsprüfungen
(IEC 62625-2:2016)

This European Standard was approved by CENELEC on 2016-03-02. CENELEC 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 CENELEC 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 CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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

European foreword

The text of document 9/2081/FDIS, future edition 1 of IEC 62625-2, prepared by IEC/TC 9 "Electrical equipment and systems for railways" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62625-2:2016.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2017-03-09
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-09-09

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

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

Endorsement notice

The text of the International Standard IEC 62625-2:2016 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61025	NOTE	Harmonized as EN 61025.
ISO/IEC 9646 (series)	NOTE	Harmonized as EN 9646 (series).
ISO/IEC 17000	NOTE	Harmonized as EN 17000.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60571	-	Railway applications - Electronic-equipment used on rolling stock	-	-
IEC 61375	series	Electronic railway equipment - Train communication network (TCN) -- Part 1: General architecture	EN 61375	series
IEC 62498-1	-	Railway applications - Environmental-conditions for equipment - Part 1: Equipment on board rolling stock	-	-
IEC 62625-1	2013	Electronic railway equipment - On board driving data recording system -- Part 1: System specification	EN 62625-1	2013
ISO/IEC 8824	series	Information technology -- Abstract Syntax-Notation One (ASN.1): Specification of basic notation	-	series

Annex ZZ
(informative)

**Relationship between this European Standard and the
Essential Requirements of EU Directive 2008/57/EC**

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers all relevant essential requirements as given in Annex III of the EC Directive 2008/57/EC (also named as New Approach Directive 2008/57/EC Rail Systems: Interoperability).

Once this standard is cited in the Official Journal of the European Union under that Directive and has been implemented as a national standard in at least one Member State, compliance with the clauses of this standard given in Table ZZ.1 relating to the 'rolling stock - locomotives and passenger rolling stock' subsystem of the rail system in the European Union, confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding Essential Requirements of that Directive and associated EFTA regulations.

**Table ZZ.1 - Correspondence between this European Standard, the RST LOC&PAS TSI
(published in the Official Journal L 356 on 12 December 2014, p. 228) and Directive
2008/57/EC**

Clauses of this European Standard	Chapter / § / points / of RST LOC&PAS TSI	Essential Requirements (ER) of Directive 2008/57/EC	Comments
Clauses 1 to 7 are applicable	4.2.9.6 Recording device	2. Requirements specific to each sub-subsystem 2.4. Rolling Stock 2.4.3. Technical compatibility 2.4.4 Controls	

WARNING: Other requirements and other EU Directives may be applicable to the products falling within the scope of this standard.



INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Electronic railway equipment – On board driving data recording system –
Part 2: Conformity testing**

**Matériel électronique ferroviaire – Système embarqué d'enregistrement de
données de conduite –
Partie 2: Essais de conformité**





THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2016 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
 3, rue de Varembe
 CH-1211 Geneva 20
 Switzerland

Tel.: +41 22 919 02 11
 Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing 20 000 terms and definitions in English and French, with equivalent terms in 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

65 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Catalogue IEC - webstore.iec.ch/catalogue

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 20 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 15 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary

65 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.



INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Electronic railway equipment – On board driving data recording system –
Part 2: Conformity testing**

**Matériel électronique ferroviaire – Système embarqué d'enregistrement de
données de conduite –
Partie 2: Essais de conformité**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 45.060

ISBN 978-2-8322-3106-7

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD	5
INTRODUCTION	7
1 Scope	8
2 Normative references	8
3 Terms, definitions, abbreviations, acronyms, and conventions.....	8
3.1 Terms and definitions.....	8
3.2 Abbreviations and acronyms	9
4 Conformity testing	10
4.1 Overview	10
4.1.1 General	10
4.1.2 Applicability	10
4.1.3 Methodology	10
4.2 Implementation conformity statements.....	13
4.2.1 General	13
4.2.2 FICS and SICS	13
4.2.3 IXIT	13
5 Functional requirements conformity testing	14
5.1 Implementation statement for functional requirements conformity testing	14
5.1.1 General	14
5.1.2 Record train data	14
5.1.3 Ensure on board protection of recorded data	14
5.1.4 Ensure retrieval of recorded data	15
5.1.5 Recorded data analysis.....	15
5.1.6 List of provided optional functions	15
5.2 Standardized test methods for functional requirements	16
6 System requirements conformity testing.....	26
6.1 Implementation statement for system requirements conformity testing	26
6.1.1 General	26
6.1.2 ODDRS mode	26
6.1.3 Recording performance.....	26
6.1.4 Environment	26
6.1.5 Availability and reliability.....	26
6.1.6 Security of records.....	27
6.1.7 Maintainability and diagnostic	27
6.1.8 Recorded data survivability	27
6.1.9 Recording resolution and frequency	27
6.1.10 Time of day and date	28
6.1.11 Train location.....	29
6.1.12 The unit of train speed	29
6.1.13 Input requirements	29
6.1.14 Software identification and upgrading.....	30
6.1.15 Replacement time of ODDR unit.....	30
6.1.16 Power consumption.....	30
6.1.17 Data interface to subsystems and service interface	30
6.1.18 Optional mode switching time.....	31

6.2	Standardized test methods for system requirements	31
7	Arrangements for ODDR Unit type test.....	44
7.1	Type test with the integrated ODDRS	44
7.1.1	General	44
7.1.2	Equivalent signal generator, power supply.....	44
7.1.3	Setup of the test environment.....	45
Annex A	(informative) FICS and SICS structure and instruction	46
A.1	FICS and SICS pro-forma.....	46
A.1.1	General	46
A.1.2	Abbreviations used in FICS and SICS tables	46
A.2	FICS and SICS tables	46
A.2.1	Identification of FICS and SICS.....	46
A.2.2	Identification of the implementation under test.....	46
A.2.3	Identification of the IUT supplier.....	47
A.2.4	Identification of the standards	47
A.2.5	Global statement of conformity.....	48
A.2.6	Level of conformity.....	48
A.2.7	FICS and SICS tables structure.....	48
Annex B	(informative) Methods for testing the parameter values of the protection capability.....	50
B.1	Overview	50
B.2	General procedure	50
B.3	Detailed procedure.....	50
B.3.1	Protection capability code FA.....	50
B.3.2	Protection capability code FB.....	51
B.3.3	Protection capability code SA.....	51
B.3.4	Protection capability code SB.....	52
B.3.5	Protection capability code PA.....	52
B.3.6	Protection capability code CA.....	52
B.3.7	Protection capability code CB.....	53
B.3.8	Protection capability code IA.....	53
B.3.9	Protection capability code IB.....	53
B.3.10	Protection capability code HA.....	54
B.3.11	Protection capability code MA	54
Bibliography	55
Figure 1	– Conformity testing process	11
Figure 2	– Test configurations at the integrated type test	45
Figure B.1	– Impact shock waveform.....	52
Table 1	– FICS pro-forma “Record train data”.....	14
Table 2	– FICS pro-forma “Ensure on board protection of recorded data”	15
Table 3	– FICS pro-forma “Ensure retrieval of recorded data”	15
Table 4	– FICS pro-forma “Recorded data analysis”	15
Table 5	– FICS pro-forma “List of provided optional functions”.....	15
Table 6	– Standardized test methods for functional requirements	17
Table 7	– SICS pro-forma “ODDRS mode”	26

Table 8 – SICS pro-forma “Recording performance”	26
Table 9 – SICS pro-forma “Environment”	26
Table 10 – SICS pro-forma “Availability and reliability”	27
Table 11 – SICS pro-forma “Security of records”	27
Table 12 – SICS pro-forma “Maintainability and diagnostic”	27
Table 13 – SICS pro-forma “Recorded data survivability”	27
Table 14 – SICS pro-forma “Recording resolution and frequency”	28
Table 15 – SICS pro-forma “Time of day and date”	29
Table 16 – SICS pro-forma “Train location”	29
Table 17 – SICS pro-forma “The unit of train speed”	29
Table 18 – SICS pro-forma “Input requirements”	30
Table 19 – SICS pro-forma “Software identification and upgrading”	30
Table 20 – SICS pro-forma “Replacement time of ODDR unit”	30
Table 21 – SICS pro-forma “Power consumption”	30
Table 22 – SICS pro-forma “Data interface to subsystems and service interface”	31
Table 23 – SICS pro-forma “Optional mode switching time”	31
Table 24 – Standardized test methods for system requirements	32
Table A.1 – FICS and SICS identification table.....	46
Table A.2 – IUT identification table	47
Table A.3 – IUT supplier identification table	47
Table A.4 – Applicable standards identification table	47
Table A.5 – Global statement table	48
Table A.6 – FICS and SICS tables format.....	49

INTERNATIONAL ELECTROTECHNICAL COMMISSION

—————

**ELECTRONIC RAILWAY EQUIPMENT –
ON BOARD DRIVING DATA RECORDING SYSTEM –**
Part 2: Conformity testing**FOREWORD**

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62625-2 has been prepared by IEC Technical Committee 9: Electrical equipment and systems for railways.

The text of this standard is based on the following documents:

FDIS	Report on voting
9/2081/FDIS	9/2118/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 62625 series, published under the general title *Electronic railway equipment – On board driving data recording system*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

In consideration that IEC 62625-1 specifies the ODDRS (On Board Driving Data Recording System) requirements in terms of functional and system descriptions, a standardized conformity testing approach was developed in this standard on the base of the ISO/IEC 9646 series standards.

The ISO/IEC 9646 series standards apply to the assessment of communication protocol and are based on the concept of PICS (Protocol Implementation Conformity Statement) and PIXIT (Protocol Implementation eXtra Information for Testing). This standard extends the concepts to functional and system description introducing FICS (Function Implementation Conformity Statement), SICS (System Implementation Conformity Statement) and IXIT (Implementation eXtra Information for Testing).

The IEC 62625-1 requirements implementation, formally described by FICS, SICS and IXIT are verified by design review and other test methods applied to ODDR Unit and ODDRS installed on the train.

ELECTRONIC RAILWAY EQUIPMENT – ON BOARD DRIVING DATA RECORDING SYSTEM –

Part 2: Conformity testing

1 Scope

This part of IEC 62625 covers the standardized test methods for verifying the compliance of an On board Driving Data Recording System implementation with the requirements specified by IEC 62625-1.

Furthermore, it covers the conformity testing criteria for designed and manufactured ODDRS. This part of IEC 62625 includes the list of the requirements specified by IEC 62625-1 and the relevant acceptance conditions for ODDRS at design review, type test and routine test phases. For the train level design review and train level test phases, this part provides guidelines for the conformity testing methods to be applied to the ODDRS installed on the train.

This part does not cover the conformity assessment schemes that, according to ISO/IEC Directives Part 2, are the responsibility of ISO policy committee “Committee on conformity assessment” (ISO/CASCO). Consequently, this part does not include elements related to conformity assessment aspects other than design review and testing provisions for the products, processes or services which implements the requirements specified in IEC 62625-1. This part does not delete, change or interpret the general requirements for conformity assessment procedures and vocabulary detailed in ISO/IEC 17000.

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.

IEC 60571, *Railway applications – Electronic equipment used on rolling stock*

IEC 61375 (all parts), *Electronic railway equipment – Train communication network (TCN)*

IEC 62498-1, *Railway applications – Environmental conditions for equipment – Part 1: Equipment on board rolling stock*

IEC 62625-1:2013, *Electronic railway equipment – On board driving data recording system – Part 1: System specification*

ISO/IEC 8824 (all parts), *Information technology – Abstract Syntax Notation One (ASN.1)*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN