



SLOVENSKI STANDARD
SIST EN ISO 17409:2017
01-marec-2017

Cestna vozila na električni pogon - Priklučitev na zunanje električno napajanje - Varnostne zahteve (ISO 17409:2015)

Electrically propelled road vehicles - Connection to an external electric power supply - Safety requirements (ISO 17409:2015)

Elektrisch angetriebene Straßenfahrzeuge - Anschluss an eine externe elektrische Stromversorgung - Sicherheitsanforderungen (ISO 17409:2015)

Véhicules routiers à propulsion électrique - Connexion à une borne d'alimentation électrique externe - Exigences de sécurité (ISO 17409:2015)

<https://standards.iteh.ai/catalog/standards/sist/6b476c49-0444-40fd-9518-4628296c3a29/sist-en-iso-17409-2017>

Ta slovenski standard je istoveten z: EN ISO 17409:2017

ICS:

43.120 Električna cestna vozila Electric road vehicles

SIST EN ISO 17409:2017 **en,fr,de**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 17409:2017](https://standards.iteh.ai/catalog/standards/sist/6b476c49-0444-40fd-9518-4628296c3a29/sist-en-iso-17409-2017)

<https://standards.iteh.ai/catalog/standards/sist/6b476c49-0444-40fd-9518-4628296c3a29/sist-en-iso-17409-2017>

EUROPEAN STANDARD

EN ISO 17409

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 2017

ICS 43.120

English Version

Electrically propelled road vehicles - Connection to an external electric power supply - Safety requirements (ISO 17409:2015, Corrected version 2015-12-15)

Véhicules routiers à propulsion électrique - Connexion à une borne d'alimentation électrique externe - Exigences de sécurité (ISO 17409:2015, Version corrigée 2015-12-15)

Elektrisch angetriebene Straßenfahrzeuge - Anschluss an eine externe elektrische Stromversorgung - Sicherheitsanforderungen (ISO 17409:2015, korrigierte Fassung 2015-12-15)

This European Standard was approved by CEN on 21 December 2016.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

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

Contents	Page
European foreword.....	3

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 17409:2017](https://standards.iteh.ai/catalog/standards/sist/6b476c49-0444-40fd-9518-4628296c3a29/sist-en-iso-17409-2017)
<https://standards.iteh.ai/catalog/standards/sist/6b476c49-0444-40fd-9518-4628296c3a29/sist-en-iso-17409-2017>

European foreword

The text of ISO 17409:2015, Corrected version 2015-12-15 has been prepared by Technical Committee ISO/TC 22 "Road vehicles" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 17409:2017 by Technical Committee CEN/TC 301 "Road vehicles" the secretariat of which is held by AFNOR.

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 July 2017, and conflicting national standards shall be withdrawn at the latest by July 2017.

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.

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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
Endorsement notice

The text of ISO 17409:2015, Corrected version 2015-12-15 has been approved by CEN as EN ISO 17409:2017 without any modification.

<https://standards.iteh.ai/catalog/standards/sist/6b476c49-0444-40fd-9518-4628296c3a29/sist-en-iso-17409-2017>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 17409:2017](https://standards.iteh.ai/catalog/standards/sist/6b476c49-0444-40fd-9518-4628296c3a29/sist-en-iso-17409-2017)

<https://standards.iteh.ai/catalog/standards/sist/6b476c49-0444-40fd-9518-4628296c3a29/sist-en-iso-17409-2017>

INTERNATIONAL
STANDARD

ISO
17409

First edition
2015-11-01

Corrected version
2015-12-15

**Electrically propelled road vehicles —
Connection to an external electric
power supply — Safety requirements**

*Véhicules routiers à propulsion électrique — Connexion à une borne
d'alimentation électrique externe — Exigences de sécurité*

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 17409:2017](https://standards.iteh.ai/catalog/standards/sist/6b476c49-0444-40fd-9518-4628296c3a29/sist-en-iso-17409-2017)

<https://standards.iteh.ai/catalog/standards/sist/6b476c49-0444-40fd-9518-4628296c3a29/sist-en-iso-17409-2017>



Reference number
ISO 17409:2015(E)

© ISO 2015

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 17409:2017

<https://standards.iteh.ai/catalog/standards/sist/6b476c49-0444-40fd-9518-4628296c3a29/sist-en-iso-17409-2017>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

	Page
Foreword	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Environmental conditions	6
5 Requirements for protection of persons against electric shock	6
5.1 Basic protection.....	6
5.2 Protection under single failure conditions.....	7
5.3 Isolation resistance.....	8
5.3.1 A.C. connection (Mode 1, 2, and 3).....	8
5.3.2 D.C. connection (Mode 4).....	8
5.4 Protection from unintended voltage.....	9
5.4.1 Mode 1.....	9
5.4.2 Mode 2 and mode 3.....	9
5.4.3 Mode 4.....	9
5.4.4 Contacts of unmated portion of vehicle inlet.....	10
5.5 Insulation coordination.....	10
5.5.1 General.....	10
5.5.2 A.C. connection (Mode 1, 2, and 3).....	10
5.5.3 D.C. connection (Mode 4).....	10
6 Protection against thermal incident	10
6.1 Overcurrent protection.....	10
6.1.1 Overload protection.....	10
6.1.2 Short-circuit protection for a.c. connection.....	11
6.1.3 Short-circuit protection for d.c. connection.....	11
6.2 Arc protection for d.c. connections.....	12
6.3 Residual energy after disconnection.....	12
7 Specific requirements for the vehicle inlet, plug, and cable	12
7.1 Requirements for the plug and cable.....	12
7.2 Requirements for the vehicle inlet.....	12
8 Additional requirements for a.c. electric power supply	13
8.1 Standard a.c. external electric power supply conditions for operation in service.....	13
8.2 Current characteristics.....	13
8.2.1 Load current.....	13
8.2.2 Inrush current.....	13
8.3 D.C. fault currents.....	14
8.4 Touch current.....	14
8.5 Unintended reverse power flow.....	14
8.6 Power factor.....	14
8.7 Locking of the vehicle connector.....	14
9 Additional requirements for d.c. electric power supply	15
9.1 Disconnection device.....	15
9.2 Control pilot functions.....	15
9.3 Vehicle isolation resistance monitoring system.....	15
9.4 Locking of the vehicle connector.....	15
9.5 A.C. or D.C. electric power at the same contacts.....	16
9.6 Contact temperature at vehicle inlet.....	16
9.7 Overvoltage in case of a load dump.....	16
9.8 Unintended reverse power flow.....	17
9.9 Y capacitances.....	17
10 Operational requirements	17

ISO 17409:2015(E)

11	Owner's manual and marking	17
11.1	Owner's manual	17
11.2	Marking	17
12	Test procedure	17
12.1	General note on tests	17
12.2	Resistance of protective conductor	17
12.3	Isolation resistance test	17
12.3.1	Preconditioning and conditioning	17
12.3.2	Isolation resistance measurements at the vehicle inlet or plug	18
12.4	Withstand voltage test	18
12.4.1	General	18
12.4.2	Preconditioning and conditioning	19
12.4.3	Test procedure	19
12.4.4	Test voltage	19
12.5	Inrush current tests	20
12.5.1	General	20
12.5.2	Measurement	20
12.6	Touch current	21
	Bibliography	23

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN ISO 17409:2017](https://standards.iteh.ai/catalog/standards/sist/6b476c49-0444-40fd-9518-4628296c3a29/sist-en-iso-17409-2017)

<https://standards.iteh.ai/catalog/standards/sist/6b476c49-0444-40fd-9518-4628296c3a29/sist-en-iso-17409-2017>

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#).

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 37, *Electrically propelled vehicles*.

This corrected version of ISO 17409:2015 incorporates the following corrections.

6.1.2 and 6.1.3: The phrase 'overload protection' has been replaced with 'short-circuit protection' in four places.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN ISO 17409:2017](#)

<https://standards.iteh.ai/catalog/standards/sist/6b476c49-0444-40fd-9518-4628296c3a29/sist-en-iso-17409-2017>