



**NSAI**  
Standards

Irish Standard  
I.S. EN 50502:2015

# Railway applications - Rolling stock - Electric equipment in trolley buses - Safety requirements and current collection systems

## I.S. EN 50502:2015

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

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## Railway applications - Rolling stock - Electric equipment in trolley buses - Safety requirements and current collection systems

Applications ferroviaires - Matériel roulant - Equipement électrique des trolleybus - Exigences de sécurité et systèmes de connexion

Bahnanwendungen - Fahrzeuge - Elektrische Ausrüstung in O-Bussen - Sicherheitsanforderungen und Verbindungssysteme

This European Standard was approved by CENELEC on 2015-03-30. 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.

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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.

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Europäisches Komitee für Elektrotechnische Normung

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## Contents

European foreword .....	4
1 Scope .....	5
2 Normative references .....	5
3 Terms and definitions .....	7
4 Voltages and classification of the voltage bands .....	10
4.1 Voltages .....	10
4.2 Classification of the voltage bands .....	11
5 Trolley bus construction .....	12
5.1 Protection and electrical safety criteria .....	12
5.2 Electrical components in band III voltage (high voltage) .....	16
5.3 Electric traction equipment.....	17
5.4 Power supply independent from OCL.....	18
5.5 Electrical components in band II voltage (medium voltage) .....	19
5.6 Electrical components in band I voltage (low voltage).....	19
6 Checks and tests .....	20
6.1 General information.....	20
6.2 New trolley-vehicles .....	21
6.3 Overhauled trolley-vehicles.....	28
6.4 On-duty trolley vehicles (periodical checks) .....	28
6.5 Leakage Detectors (overhaul, definitions, thresholds).....	29
Annex A (normative) Constructional detailed provisions.....	39
A.1 General information.....	39
A.2 Attachment of the current collection system and other components .....	39
A.3 Insulations .....	39
A.4 Ventilation .....	39
A.5 Accessibility.....	40
A.6 Location of the main circuit breaker .....	40
A.7 Income and outlet points of cables .....	40
A.8 Cabling .....	40
A.9 Test terminal board .....	40
A.10 Insulation leakage pre-alarm.....	40
A.11 Equipment connected to different voltage band circuits .....	40
A.12 Segregation of band III circuits .....	40
A.13 Batteries and other energy storage devices .....	41
A.14 Fuel cells .....	41
A.15 Environmental conditions.....	41
Annex B (normative) Trolley buses – Current collection system for overhead contact lines .....	42
B.1 Scope .....	42
B.2 General Characteristics .....	42
B.3 Marking .....	52
B.4 Checks and tests.....	52
B.5 Inspections .....	56
B.6 Electromagnetic compatibility .....	56
Annex C (normative) Constructional requirements for current collection systems .....	57

C.1	General information.....	57
C.2	Material of the trolley poles .....	57
C.3	Current connections .....	57
C.4	Joints.....	57
C.5	Cable insulation.....	57
C.6	Abnormal line height .....	57
	Bibliography.....	59

## Figures

Figure 1	— Insulation overview — Trolley buses.....	13
Figure 2	— Test circuits.....	23
Figure 3	— Megaohmmeter connection .....	26
Figure 4	— Megaohmmeter connection .....	27
Figure 5	— Leakage current monitoring.....	31
Figure 6	— Insulation resistance monitoring .....	32
Figure 7	— Touch voltage monitoring with sliding wires .....	33
Figure 8	— Touch voltage monitoring with grounded overhead contact line .....	33
Figure 9	— Compensation of the voltage drop on the grounded overhead contact line.....	34
Figure 10	— Voltage development with a load connected to the overhead contact line .....	34
Figure 11	— Function check of the leakage current monitoring.....	36
Figure 12	— Function check of the insulation resistance monitor.....	37
Figure 13	— Function check of the touch voltage monitor with test against the positive of overhead line or external voltage source .....	38
Figure 14	— Function check of the touch voltage monitor with test against the positive of overhead line or external voltage source .....	38
Figure B.1	— General characteristics of a typical current collector .....	42
Figure B.2	— Preferred excursion of trolley poles versus distances of contact lines to ground .....	43
Figure B.3	— Example of fit of pole and the head .....	45
Figure B.4	— Example of fit of mounting frame with the support base .....	45
Figure B.5	— Typical trolley .....	46
Figure B.6	— Typical slipper .....	47
Figure B.7	— Devices (if any) for recovering and excursion limiting of pole ropes position, overall dimensions and signalling .....	50
Figure B.8	— Scheme of the verification of the detachment the current collector head .....	56

## Tables

Table 1	— Voltage bands for trolley buses .....	11
Table 2	— Voltage bands for France .....	11
Table 3	— Voltage bands for Italy (Decree D.P.R. 547: 1955, Law 191:1974) .....	11
Table 4	— Voltage bands for electric plants on road vehicles .....	12
Table 5	— Test voltages $U_a$ based on rated insulation voltage $U_{Nm}$ .....	24
Table 6	— Summary of electric tests .....	29
Table B.1	— Summary of tests and checks .....	53

EN 50502:2015 (E)

## European foreword

This document (EN 50502:2015) has been prepared by CLC/SC 9XB "Electromechanical material on board rolling stock" of the Technical Committee CENELEC TC 9X "Electrical and electronic applications for railways".

The following dates are fixed:

- latest date by which this document has to be (dop) 2016-03-30  
implemented at national level by publication of  
an identical national standard or by  
endorsement
- latest date by which the national standards (dow) 2018-03-30  
conflicting with this document have to  
be withdrawn

This document supersedes CLC/TS 50502:2008.

EN 50502:2015 includes the following significant technical changes with respect to CLC/TS 50502:2008:

- Clause 1: a more detailed scope (guided vehicles) in reference to other electric vehicles;
- 5.6.1: insulation resistance and separate source applied voltage tests for voltage band I components is waived with respect to other electric vehicles and with reference to ECE R100;
- Table 5: test voltages for components intended to break a current which are used with open contacts for supplementary or basic insulation;
- 6.4.2: specification of periodical checks additional to insulation resistance tests;
- 6.2.5, Table 6: electrical tests of the insulation of entrance areas are waived, visual inspection is added;
- 6.5: extension of description and test of different leakage detectors;
- A.3: description of special requirements for external insulations;
- A.13, A.14: addition of energy storage systems and fuel cells;
- B.2.4.6: equipment for switch operation of overhead contact line.

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.

## 1 Scope

This European Standard applies to electrical systems on board of vehicles of the type trolley bus, as defined in 3.1, fed with a nominal line voltage ( $U_n$ ) between 600 V d.c. and 750 V d.c.

This European Standard defines the requirements and constructional hints, especially to avoid electrical danger to the public and to staff. Where special requirements are existing for trolley buses, hints are given for mechanical and functional safety as well as for protection against fire.

This European Standard covers vehicles intended for public transport of persons. This Standard applies to:

- trolley buses,
- buses with current rail for guidance in the road surface,
- guided buses with bipolar roof current collector.

This European Standard does not apply to:

a) electric driven vehicles with only internal power supply:

- 1) hybrid vehicles,
- 2) diesel - electric vehicles,
- 3) fuel - cell vehicles,
- 4) battery vehicles,

b) vehicles with safe protective bonding:

- 1) rubber tyred commuter trains,
- 2) guided buses with supply by a separate current rail,
- 3) rail guided buses with unipolar roof current collector,

c) vehicles operated outside publicly accessible areas:

- 1) electric driven lorries on motorways.

Guidance and current rails are special solutions and at this time are not under standardization like trolley bus current collectors and overhead contact lines (OCL).

It refers mainly to earthed networks, but reference is made also to galvanically insulated networks.

Annex A is related to detailed design features for trolley buses.

Annexes B and C are related to the current collection systems. The detailed scope of these annexes is given in Annex B.

## 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.

EN 45502 (all parts), *Active implantable medical devices*

EN 45545-5, *Railway applications — Fire protection on railway vehicles — Part 5: Fire safety requirements for electrical equipment including that of trolley buses, track guided buses and magnetic levitation vehicles*

EN 50110 (all parts), *Operation of electrical installations*

EN 50110-1:2013, *Operation of electrical installations — Part 1: General requirements*

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