TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

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CLC/TS 50502

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English version

Railway applications – Rolling stock – Electric equipment in trolley buses – Safety requirements and connection 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 Technical Specification was approved by CENELEC on 2008-05-09.

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.

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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 9XB, Electromechanical material on board rolling stock, of Technical Committee CENELEC TC 9X, Electrical and electronic applications for railways.

The text of the draft was submitted to vote in accordance with the Internal Regulations, Part 2, Subclause 11.3.3.3 and was approved by CENELEC as CLC/TS 50502 on 2008-05-09.

This Technical Specification supersedes CLC/TS 50502:2007.

The following date was fixed:

– latest date by which the existence of the CLC/TS has to be announced at national level (doa) 2008-11-09

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1 General

1.1 Scope

This Technical Specification applies to electrical systems on board trolley buses, as defined in 1.3.1, fed with a nominal line voltage (U_n) between 600 V d.c. and 750 V d.c.

This Technical Specification defines the requirements and constructional hints, especially to avoid danger of electrical kind to the public and to the personnel.

CLC/TS 50502 is normative only for vehicles ordered and designed after publication of the same.

This Technical Specification covers vehicles intended for public transport of persons.

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

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

1.2 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.

EN 45	Definition of weldability
EN 50119	Railway applications – Fixed installations – Electric traction overhead contact lines
EN 50121 series	Railway applications – Electromagnetic compatibility
EN 50122-1	Railway applications – Fixed installations Part 1: Protective provisions relating to electrical safety and earthing
EN 50124 series	Railway applications – Insulation coordination
EN 50125 series	Railway applications – Environmental conditions for equipment
EN 50153	Railway applications – Rolling stock – Protective provision relating to electrical hazards
EN 50155	Railway applications – Electronic equipment used on rolling stock
EN 50163	Railway applications – Supply voltages of traction systems
EN 50207 [1)]	Railway applications – Electronic power converters for rolling stock
EN 50215	Railway applications – Testing of rolling stock after completion of construction and before entry into service

[1)] Superseded by EN 61287-1.

EN 50264 series	Railway applications – Railway rolling stock cables having special fire performance – Standard wall
EN 50272-3	Safety requirements for secondary batteries and battery installations Part 3: Traction batteries
EN 50306 series	Railway applications – Railway rolling stock cables having special fire performance – Thin wall
EN 50343	Railway applications – Rolling stock – Rules for installation of cabling
EN 60077 series	Railway applications – Electrical equipment for rolling stock (IEC 60077 series, mod.)
EN 60322	Railway applications – Electrical equipment for rolling stock – Rules for power resistors of open construction (IEC 60322)
EN 60349-1	Electric traction – Rotating electrical machines for rail and road vehicles Part 1: Machines other than electronic convertor-fed alternating current motors (IEC 60349-1)
EN 60349-2	Railway applications – Rotating electrical machines for rail and road vehicles Part 2: Electronic converter-fed alternating current motors (IEC 60349-2, mod.)
EN 61373	Railway applications – Rolling stock equipment – Shock and vibration tests (IEC 61373)
EN ISO 9001	Quality management systems – Requirements (ISO 9001)
ISO 10099	Pneumatic fluid power – Cylinders – Final examination and acceptance criteria

1.3 Definitions

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

1.3.1
trolley bus
rubber tyred vehicle, connected to a direct current overhead contact line, driven by one or more electrical motors. The conductors of the overhead contact line are either both insulated or one insulated and one earthed

1.3.2
current collection system
the whole of the components, generally mounted on the vehicle roof, having the task of taking the current from the overhead lines to supply the equipment of the vehicle, both in standing and in running conditions

1.3.3
mass
conductive part of an electrical component which is accessible and which is not energized in normal conditions, but may become energized in fault conditions; the equipment defined in 2.6.1 as normal bus vehicle components are not covered in this definition. The conductive parts of the chassis and of the bodywork are defined as the vehicle mass