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NSAI Standards

Standard Recommendation
S.R. CLC/TS 50535:2010

Railway applications - Onboard auxiliary power converter systems

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S.R. CLC/TS 50535:2010

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TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

CLC/TS 50535

April 2010

ICS 45.060.01

English version

Railway applications - Onboard auxiliary power converter systems

Applications ferroviaires - Convertisseur auxiliaire pour les véhicules ferroviaires

Bahnanwendungen - Hilfsbetriebeumrichtersystem für Schienenfahrzeuge

This Technical Specification was approved by CENELEC on 2010-03-26.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

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Ref. No. CLC/TS 50535:2010 E

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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.

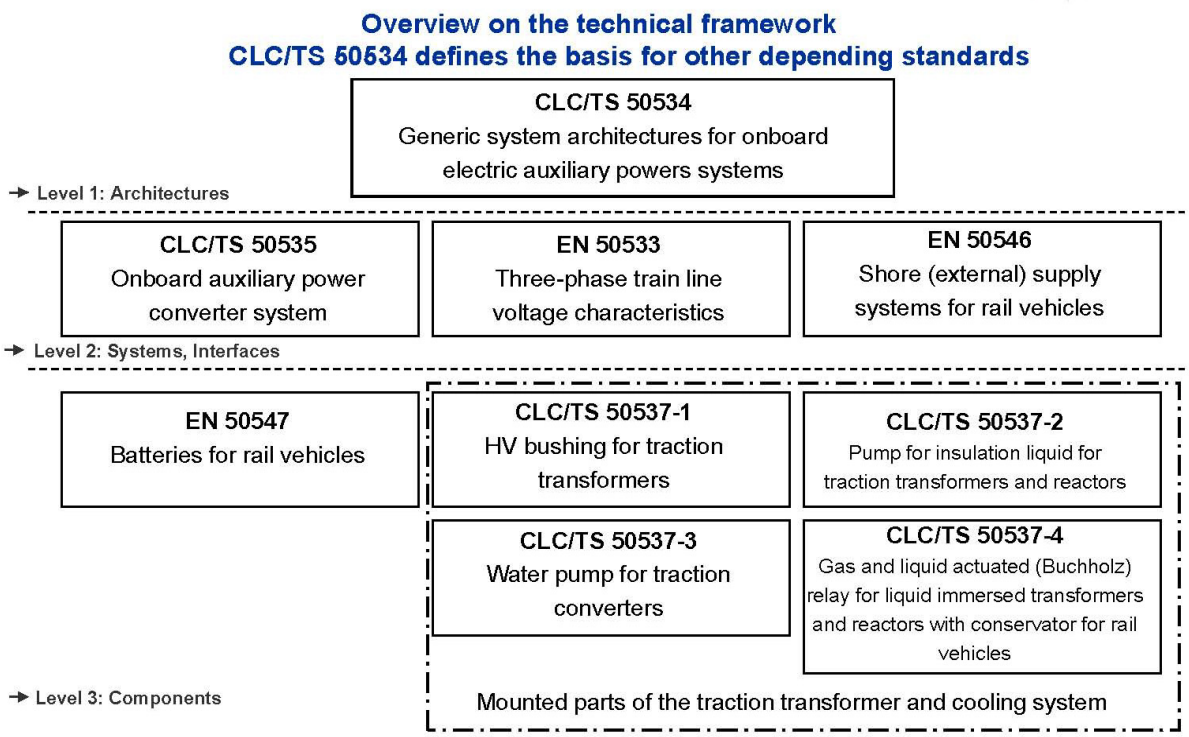
It was circulated for voting in accordance with the Internal Regulations, Part 2, Subclause 11.3.3.3 and was accepted as a CENELEC Technical Specification on 2010-03-26.

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

The following date was fixed:

– latest date by which the existence of the CLC/TS has to be announced at national level (doa) 2010-06-26

This standardization project was derived from the EU-funded Research project MODTRAIN (MODPOWER). It is part of a series of standards, referring to each other. The hierarchy of the standards is intended to be as follows:



Annexes defined to be normative belong to the content of this Technical Specification; annexes defined as informative are used only for information.

Annex A is normative and Annexes B, C and D are informative.

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Introduction

This Technical Specification defines characteristics and interfaces for electric onboard auxiliary power converter systems. This includes auxiliary power converters and battery chargers. The following European Standards and Technical Specifications refer to the defined target energy supply system in this present Technical Specification:

CLC/TS 50534	Railway applications – Generic system architectures for onboard electric auxiliary power systems *(Characteristics and interface of generic system architectures for onboard electric auxiliary power systems)*
EN 50533 [1)]	Railway applications – Three-phase train line voltage characteristics *(Characteristics of the voltage system used for auxiliary power supply)*
EN 50546 [2)]	Railway applications – Shore (external) supply system for rail vehicles *(Interface description of the shore supply including protection functions)*
EN 50547 [2)]	Railway applications – Batteries for rail vehicles *(Standardized batteries for rail vehicles and charging characteristics)*
CLC/TS 50537 (series)	Railway applications – Mounted parts of the traction transformer and cooling system *(Standardized products used in conjunction with traction transformers and traction cooling systems)*

CLC/TS 50535 has to be understood as a basic document of a set of hierarchically structured specifications as illustrated in the foreword. This set of European Standards and Technical Specifications defines a consistent technical framework beginning on an architectural level, followed by standards belonging to important system interfaces and concluding this hierarchy with Technical Specifications on component level. The diagram in the foreword points up these different system integration levels and shows the dependencies between the documents.

One main objective of this standardisation initiative is to simplify the cooperation between concerned railway stakeholders in charge of operating onboard auxiliary power systems, designing systems able to cope with the operational requirements and stakeholders manufacturing auxiliary power system components, which provide the requested services.

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1) At draft stage.

2) Under development.

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1 Scope

This Technical Specification defines the classification of the electric onboard auxiliary power converter system and defines its basic characteristics and interfaces. The onboard auxiliary power converter system consists of the auxiliary converter and the battery charger function.

This Technical Specification applies to locomotive hauled passenger trains and electric multiple units with distributed power as well as trains with concentrated power heads. Relevant train configuration and concerned energy supply subsystems are defined in CLC/TS 50534. This Technical Specification provides a technical base for implementation of onboard auxiliary power systems on different trains.

The objective of this specification is to define the required interfaces and characteristics of the onboard auxiliary power converter system in order to enable further standardisation:

- interface between onboard auxiliary power converter system and onboard traction power system;
- interface of the onboard auxiliary power supply system to the low voltage grid and to a shore supply (stationary workshop supply or external supply);
- interfaces of the auxiliary converter and the battery charger;
- characteristics of the onboard auxiliary power converter system.

The electrical operational behaviour is defined by requirements. Requirements for the type tests as well as the routine test are referred.

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.

TS 45545 (series)	2009 [3]	*Railway applications – Fire protection on railway vehicles*
CLC/TS 50534		*Railway applications – Generic system architectures for onboard electric auxiliary power systems*
EN 12663	2000	*Railway applications – Structural requirements of railway vehicle bodies*
EN 50121-3-2	2000 [4]	*Railway applications – Electromagnetic compatibility – Part 3-2: Rolling stock – Apparatus*
EN 50125-1	1999	*Railway applications – Environmental conditions for equipment – Part 1: Equipment on board rolling stock*
EN 50163 + A1	2004 2007	*Railway applications – Supply voltages of traction systems*
EN 50238		*Railway applications – Compatibility between rolling stock and train detection systems*

[3] Part 5 is of CENELEC origin – Other parts are from CEN.

[4] Superseded by EN 50121-3-2:2006, *Railway applications – Electromagnetic compatibility – Part 3-2: Rolling stock – Apparatus*.

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