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Standard Recommendation  
S.R. CLC/TS 50546:2013

# Railway applications - Rolling stock - 3-phase shore (external) supply system for rail vehicles

## S.R. CLC/TS 50546:2013

*Incorporating amendments/corrigenda issued since publication:*

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<i>This document replaces:</i>	<i>This document is based on:</i> CLC/TS 50546:2013	<i>Published:</i> 7 June, 2013
This document was published under the authority of the NSAI and comes into effect on:  20 June, 2013		ICS number: 29.280
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TECHNICAL SPECIFICATION

**CLC/TS 50546**

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

June 2013

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ICS 29.280

English version

**Railway applications -  
Rolling stock -  
3-phase shore (external) supply system for rail vehicles**

Applications ferroviaires -  
Matériel roulant -  
Systèmes d'alimentation triphasée  
(externe) de quai pour les véhicules  
ferroviaires

Bahnanwendungen -  
Fahrzeuge -  
Dreiphasige Fremdeinspeisung für  
Eisenbahnfahrzeuge

This Technical Specification was approved by CENELEC on 2013-05-16.

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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 document (CLC/TS 50546:2013) has been prepared by Working Group 19 of SC 9XB "Electromechanical material on board of rolling stock", of Technical Committee CLC/TC 9X, "Electrical and electronic applications for railways".

There is no appropriate European standard dealing with shore supply systems published. This System Technical Specification documents three power levels for 3AC 400 V / 50 Hz shore supply systems as set out below:

- 400kW - High Power System;
- 86kW – Medium Power System;
- 44kW – Low Power system.

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.

## Introduction

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:



**Figure 1 – Overview on the technical framework CLC/TS 50534 defines the basis for other depending standards**

## 1 Scope

This Technical Specification provides the requirements for compatibility of systems defined and good practice for three phase AC 400 V/50 Hz shore (external) supply systems. It focuses on describing the defined interfaces regarding electrical power supply in stations, depots/workshops and stabling points into the rail vehicle.

This Technical Specification provides recommended characteristics of power supply and its connectors.

The electrical characteristics relate to 3 AC 400 V/50 Hz.

Sensing of phase rotation is outside the scope of this Technical Specification but it is assumed that phase sequence between the external supply and the railway vehicle is synchronised.

## 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 50467, *Railway applications — Rolling Stock — Electrical connectors, requirements and test methods*

EN 50533:2011, *Railway applications — Three-phase train line voltage characteristics*

## 3 Terms, definitions and abbreviations

### 3.1 Terms and definitions

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

#### 3.1.1

##### **infeed point**

in use connector on a vehicle

#### 3.1.2

##### **shore connector**

connector, fitted to cables fed from the external source

#### 3.1.3

##### **vehicle connector**

fixed connector, installed in a railway vehicle, which accepts an electrical power supply via the shore connector

### 3.2 Abbreviations

For the purposes of this document, the following abbreviations apply.

AC Alternating Current

EMC Electro Magnetic Compatibility

Hz Hertz

kW Kilowatt

A Amps

V Volts

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