

English version

**Railway applications -  
Safety measures for the personnel working  
on or near overhead contact lines**

Applications ferroviaires -  
Mesures de sécurité pour le personnel  
travaillant sur ou à proximité des lignes  
aériennes de contact

Bahnanwendungen -  
Sicherheitsmaßnahmen bei Arbeiten  
an und in der Nähe von Oberleitungen

This Technical Report was approved by CENELEC on 2006-11-24.

CENELEC members are the national electrotechnical committees of Austria, Belgium, 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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## **Foreword**

This Technical Report was prepared by SC 9XC, Electric supply and earthing systems for public transport equipment and ancillary apparatus (fixed installations), of Technical Committee CENELEC TC 9X, Electrical and electronic applications for railways.

The text of the draft was submitted to the formal vote and was approved by CENELEC as CLC/TR 50488 on 2006-11-24.

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## Introduction

This Technical Report was prepared in order to provide a technical basis for possible further standardization activities on the subject above.

As it is known, the safety rules for the work activities on or near electrical installations are stated by EN 50110-1. This standard was conceived with particular reference to the A.C. three-phase or D.C. electric power generation, transmission and distribution systems. It states explicitly that it "has not been developed specifically to apply" to the electric traction systems, because of the particular nature of these installations.

In developing the present document, EN 50110-1 was taken as a guide, following the recommendation contained in the Scope of the abovementioned Standard.

Because of the too many differences existing and the particular scenarios, this document deals with maintenance activities in the vicinities of the overhead contact lines with nominal voltage equal or above 1,5 kV.

During the WG activity the general rules for organization of the work and personnel qualification contained in EN 50110-1 revealed to be applicable also to the electric traction lines and are reported here for the sake of completeness. According to the CEN/CENELEC Internal Regulations Part 3 – Clause 1, second paragraph, in the statements that were taken from EN 50110-1 without modification, the expressions "shall", "is to" and similar were not changed in the corresponding (should, ought to, etc.) referred to in Table G.2 of the abovementioned document.

Safety measures for live working activities are not covered in this Technical Report. In the countries where the live working on the overhead contact lines is allowed, the National Committees should state the necessary safety rules

## 1 Scope

This Technical Report (TR) is applicable to all work activity on or near the overhead contact line [IEC 60050-811, definition 811-33-02] of railway installations with supply voltage values as described in Table 1, derived from EN 50163.

**Table 1**

Electrification system	Nominal voltage V
d.c. (mean values)	1 500 3 000
a.c. (rms values)	15 000 25 000

This Technical Report applies to requirements for safe working and maintenance procedures. It applies to all electrical work activities as well as non-electrical work activities.

This Technical Report deals with the electrical hazard only. Risks coming from train traffic are not covered in this document.

This Technical Report does not apply to:

- guided mass transport systems such as tramways, elevated and underground metro railways, mountain railways, trolley bus and other conductor rail systems;
- mine or other internal industrial material transportation railways;
- railway installations with supply voltage values below 1 500 V;
- experimental electrical research work.

## 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 50110-1:2004, *Operation of electrical installations*

EN 50122-1:1997, *Railway applications – Fixed installations – Part 1: Protective provisions relating to electrical safety and earthing*

EN 50163:2004, *Railway applications – Supply voltages of traction systems* (IEC 60850:2000, related)

IEC 60050-811:1991, *International Electrotechnical Vocabulary (IEV) – Chapter 811: Electric traction*

IEC 60050-826:2004, *International Electrotechnical Vocabulary (IEV) – Part 826: Electrical installations*