

English version

**Railway applications -  
Compatibility between rolling stock and train detection systems -  
Part 3: Compatibility with axle counters**

Applications ferroviaires -  
Compatibilité entre le matériel roulant et  
les systèmes de détection des trains -  
Partie 3: Compatibilité avec les compteurs  
d'essieux

Bahnanwendungen -  
Kompatibilität zwischen Fahrzeugen und  
Gleisfreimeldesysteme -  
Teil 3: Kompatibilität mit Achszähler

This Technical Specification was approved by CENELEC on 2013-10-14.

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**CENELEC**

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## Foreword

This document (CLC/TS 50238-3:2013) has been prepared by CLC/SC 9XA "Communication, signalling and processing systems", of Technical Committee CLC/TC 9X "Electrical and electronic applications for railways".

This document supersedes CLC/TS 50238-3:2010.

CLC/TS 50238-3:2013 includes the following significant technical changes with respect to CLC/TS 50238-3:2010:

- this new edition represents a major technical change from the previous edition: the entire document has been changed, from the scope to the last clause, to take into account CLC/TC 9X decision 47-13 "TC9X instructs WGA4-2 Convenor to remove sections about the procedure of testing of rolling stock from the draft TS 50238-3 (project 23571), considering SC9XA Decision 38/2";
- Annexes B to D have been deleted.

This Technical Specification is Part 3 in the following series:

- EN 50238, *Railway applications – Compatibility between rolling stock and train detection systems*;
- CLC/TS 50238-2, *Railway applications – Compatibility between rolling stock and train detection systems – Part 2: Compatibility with track circuits*;
- CLC/TS 50238-3, *Railway applications – Compatibility between rolling stock and train detection systems – Part 3: Compatibility with axle counters*.

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 Technical Specification defines the interference limits and evaluation criteria for electromagnetic compatibility between rolling stock and axle counter detectors.

The limits have been defined on the basis of a test specification described in prEN 50617-2:2013 [2] (cf. CLC/SC9XA/Sec0779/CD) (laboratory tests).

This Technical Specification defines

- a set of interference limits for magnetic fields resulting from both rail current and equipment on board the vehicles,
- evaluation criteria to verify rolling stock emissions and demonstrate compatibility with the interference limits for magnetic fields,
- traceability of requirements (type of axle counter detectors considered for the limits).

In the relevant frequency range of the axle counter detectors, the magnetic field is dominant and only this type of field is considered. Experience has shown that the effects of electric fields are insignificant and therefore not considered.

## 1 Scope

For the purpose of demonstrating compatibility between rolling stock and axle counter detectors, this Technical Specification defines the interference limits and evaluation methods to verify rolling stock emissions. Wheel sensors and crossing loops are not covered by this Technical Specification.

This Technical Specification gives recommended individual limits to be applied to establish compatibility between RST and all selected types of axle counter detectors, including any covered by national standards.

The list of selected types of axle counters and their limits for compatibility are drawn on the basis of established performance criteria. It is expected that the trend for newly signalled interoperable lines will be fitted with types that meet the compatibility limits published in the TSI CCS Interfaces Document (ERA/ERTMS/033281).

To ensure adequate operational availability, it is essential that the rolling stock complies with the defined limits; otherwise, the established availability of the valid output function of axle counter detectors may be compromised.

**NOTE** The influences from metal parts or inductively coupled resonant circuits on the vehicle, eddy current brakes or magnetic brakes, are not covered by this Technical Specification but are considered on the basis of national technical specifications.

## 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 50238:2003, *Railway applications – Compatibility between rolling stock and train detection systems*

ERA/ERTMS/033281, *Interfaces between control-command and signalling trackside and other subsystems*, version 1.0, published on 2012-02-23

## 3 Terms, definitions and abbreviations

For the purposes of this document, the terms, definitions and abbreviations given in EN 50238:2003 and the following apply.

### 3.1 Terms and definitions

#### 3.1.1

##### **axle counter detector**

detector consisting of the axle counter sensor and of the detection circuit, which includes in general filters and rectifiers

#### 3.1.2

##### **axle counter sensor**

sensor head mounted in the track

#### 3.1.3

##### **axle counter system**

whole system including axle counter sensor, axle counter detector and the evaluation unit