

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 Gleisfreimeldesystemen - Teil 3: Kompatibilität mit  
Achszähler

This Technical Specification was approved by CENELEC on 2019-08-05.

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## European foreword

This document (CLC/TS 50238-3:2019) has been prepared by CLC/SC 9XA "Communication, signalling and processing systems", of Technical Committee CLC/TC 9X "Electrical and electronic applications for railways".

The following date is fixed:

- latest date by which the existence of this document (doa) 2020-02-05 has to be announced at national level

This document supersedes CLC/TS 50238-3:2013.

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

CLC/TS 50238-3:2019 includes the following significant technical changes with respect to CLC/TS 50238-3:2013:

- amended and new limits in Annex A;
- amended definitions.

This document is Part 3 in the following series:

- EN 50238-1, *Railway applications – Compatibility between rolling stock and train detection systems – Part 1: General*;
- 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*.

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## Introduction

This document 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 EN 50617-2 (laboratory tests).

This document 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.

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## 1 Scope

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

This document 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 TS 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 document but are considered on the basis of national technical specifications.

For wheel sensors and wheel detectors in other applications than axle counters but utilizing the same rail sensors and detectors, transient and continuous interference can be considered as equivalent to axle counter detectors or axle counter sensors.

## 2 Normative references

The following documents are referenced to in the text in such a way that some or all of their content constitutes requirements 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 50238-1:2003,<sup>1</sup> *Railway applications – Compatibility between rolling stock and train detection systems – Part 1: General*

EN 50592, *Railway applications – Testing of rolling stock for electromagnetic compatibility with axle counters*

EN 50617-2:2015,<sup>2</sup> *Railway Applications – Technical parameters of train detection systems for the interoperability of the trans-European railway system – Part 2: Axle counters*

ERA/ERTMS/033281, *Interfaces between control-command and signalling trackside and other subsystems*

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<sup>1</sup> This standard is impacted by the corrigendum EN 50238:2003/AC:2014.

<sup>2</sup> This standard is impacted by the corrigendum EN 50617-2:2015/AC:2016.