SLOVENSKI STANDARD
SIST-TS CLC/TS 50238-3:2020

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SIST-TS CLC/TS 50238-3:2014

Železniške naprave - Združljivost voznih sredstev in sistemov za detekcijo vlaka - 3. del: Združljivost s števci osi

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

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

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

Ta slovenski standard je istoveten z: **CLC/TS 50238-3:2019**

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SIST-TS CLC/TS 50238-3:2020 **en**

TECHNICAL SPECIFICATION

SPÉCIFICATION TECHNIQUE

TECHNISCHE SPEZIFIKATION

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Supersedes CLC/TS 50238-3:2013

English Version

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

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

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

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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 has to be announced at national level (doa) 2020-02-05

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*.

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.

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 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 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,[1] *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, [2] *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*

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

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

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 50238-1:2003 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

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

[SOURCE: EN 50617-2:2015, 3.1.2]

3.1.2
axle counter sensor
sensor head mounted in the track

[SOURCE: EN 50617-2:2015, 3.1.3]

3.1.3
axle counter system
whole system including the axle counter detector with its sensor, and the evaluation unit

[SOURCE: EN 50617-2:2015, 3.1.4]

3.1.4
integration time
window size over which the root mean square (RMS) of the output of the band-pass filter is calculated

Note 1 to entry: Integration time is one parameter for evaluation of the measurement results of compatibility tests of vehicles (TSI CCS Interfaces Document (ERA/ERTMS/033281)).

[SOURCE: EN 50617-2:2015, 3.1.12, modified – The beginning of the sentence “parameter for evaluation defined as the” has been removed and the Note 1 to entry has been added.]

3.1.5
in-band
working frequency area of an axle counter detector

Note 1 to entry: In relation with the frequency management of TSI CCS Interfaces Document (ERA/ERTMS/033281), it defines the area of the single bands (band 1, band 2, band 3).

[SOURCE: EN 50617-2:2015, 3.1.9, modified – The Note 1 to entry has been added.]

3.2 Abbreviations

For the purposes of this document, the terms and definitions and abbreviations given in EN 50238-1:2003 and the following apply.

CCS	Control-Command and Signalling
FrM	Frequency Management
RMS	root mean square
RST	Rolling Stock
T_{int}	Integration Time
TSI	Technical Specification for Interoperability

4 General aspects

4.1 Interference mechanism

4.1.1 General

Axle counter detectors can be influenced in different ways, e.g. by magnetic fields or metallic parts in the vicinity of wheels and bogies and thus close to the sensors. The influence of magnetic fields on the immunity of the individual axle counters is dominant. In addition, the duration and/or repetition rate of interference and the magnetic field strength are also relevant.

4.1.2 Axle counter detector

The compatibility limits in this document are based on the immunity of axle counter detectors and are specified only for the axle counter detector – comprising the sensor on the rail and the detection circuits in the trackside equipment as shown in Figure 1.

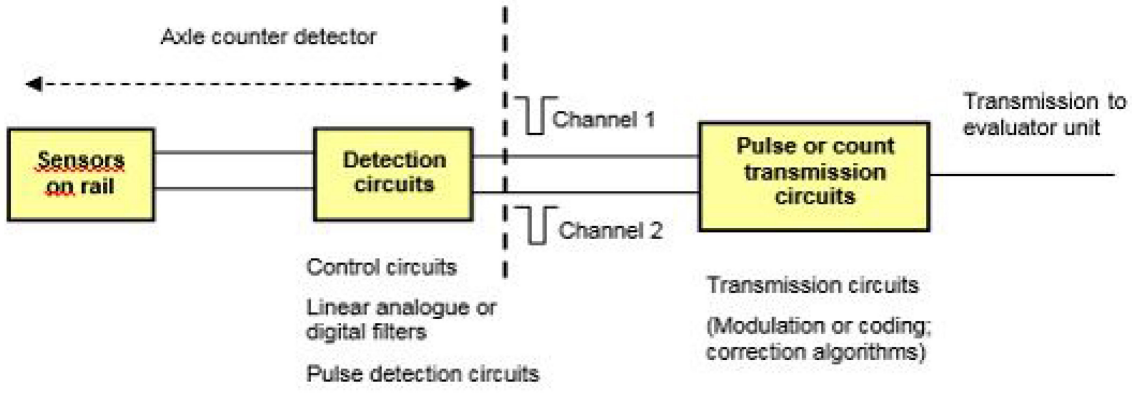

Figure 1 — Axle counter detector, schematic diagram