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English Version

Railway applications - Compatibility between rolling stock and train detection systems - Part 2: Compatibility with track circuits

Applications ferroviaires - Compatibilité entre le matériel roulant et les systèmes de détection des trains - Partie 2 - Compatibilité avec les circuits de voie

Bahnanwendungen - Kompatibilität zwischen Fahrzeugen und Gleisfreimeldesystemen - Teil 2: Kompatibilität mit Gleisstromkreisen

This Technical Specification was approved by CENELEC on 2015-04-20.

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

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Contents

Figures

Tables

Foreword

This document (CLC/TS 50238-2:2015) 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 50238-2:2010.

CLC/TS 50238-2:2015 includes the following significant technical changes with respect to CLC/TS 50238-2:2010:

- The interference current limits for RST have been updated in the normative Annex A.
- The measurement and evaluation methods for verifying conformity of rolling stock to the limits for interference current emissions have been moved to the new normative Annex B.

This Technical Specification is intended to become Part 2 of the EN 50238 series published under the title *Railway applications — Compatibility between rolling stock and train detection systems*. The series consists of:

- *Part 1: General* [1)]:
- *Part 2: Compatibility with track circuits* [this document];
- *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.

1) The existing EN 50238:2003 was renumbered EN 50238-1 when the voting procedure on Parts 2 and 3 was closed.

Introduction

This Technical Specification is being developed to permit compliance with the Interoperability Directives (High Speed and Conventional).

This Part 2 of the series defines:

- a set of interference current limits for rolling stock based on defined track circuits,
- measurement and evaluation methods to verify rolling stock interference current emissions and demonstrate compatibility with the track circuits;
- traceability of compatibility requirements (types of track circuit and associated limits).

1 Scope

This Technical Specification defines, for the purpose of ensuring compatibility between rolling stock and track circuits, the limits for interference current emissions from rolling stock. The measurement and evaluation methods for verifying conformity of rolling stock to these limits are presented in a dedicated annex.

The interference limits are only applicable to interoperable rolling stock which is intended to run on lines exclusively equipped with preferred track circuits listed in this Technical Specification. National Notified Technical Rules are still to be used in all cases, where the line over which the rolling stock is intended to run is equipped with any type of older version or non-preferred track circuits that are not listed in this Technical Specification. However, the rolling stock test methodology (infrastructure conditions, test configurations, operational conditions, etc.) presented in this Technical Specification is also applicable to establish compatibility with non-preferred track circuits.

This Technical Specification gives guidance on the derivation of interference current limits specified for rolling stock and defines measurement methods and evaluation criteria in a dedicated annex.

This Technical Specification defines:

a) a set of interference current limits for RST (Rolling Stock) applicable for each of the following types of traction system:
    1) DC (750 V, 1,5 kV and 3 kV);
    2) 16,7 Hz AC;
    3) 50 Hz AC;
b) methodology for the demonstration of compatibility between rolling stock and track circuits;
c) measurement method to verify interference current limits and evaluation criteria.

NOTE 1 The basic parameters of track circuits associated with the interference current limits for RST are not in the scope of this Technical Specification.

NOTE 2 Any phenomena linked to traction power supply and associated protection (over voltage, short-circuit current, under- and over-voltage if regenerative brakes are used) is part of the track circuit design and outside the scope of this Technical Specification.

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 50126 (all parts), *Railway applications — The specification and demonstration of Reliability, Availability, Maintainability and Safety (RAMS)*

EN 50128, *Railway applications — Communication, signalling and processing systems — Software for railway control and protection systems*

EN 50129, *Railway applications — Communication, signalling and processing systems — Safety related electronic systems for signalling*

EN 50238-1:2003, *Railway applications — Compatibility between rolling stock and train detection systems — Part 1: General*

CLC/TS 50238-3:2013, *Railway applications — Compatibility between rolling stock and train detection systems — Part 3: Compatibility with axle counters*

EN 50388, *Railway Applications — Power supply and rolling stock — Technical criteria for the coordination between power supply (substation) and rolling stock to achieve interoperability*

CLC/TR 50507, *Railway applications — Interference limits of existing track circuits used on European railways*