

**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 2010-07-07.

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European Committee for Electrotechnical Standardization  
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## Foreword

This Technical Specification was prepared by SC 9XA, Communication, signalling and processing systems, of Technical Committee CENELEC TC 9X, Electrical and electronic applications for railways.

It was circulated for voting in accordance with the Internal Regulations, Part 2, Subclause 11.3.3.3 and was approved by CENELEC as CLC/TS 50238-3 on 2010-07-09.

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The following date was fixed:

- latest date by which the existence of the CLC/TS  
has to be announced at national level (doa) 2011-01-07

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

- Part 1: General <sup>1)</sup>
- Part 2: Compatibility with track circuits (this document)
- Part 3: Compatibility with axle counters.

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<sup>1)</sup> Existing EN 50238:2003 was renumbered EN 50238-1 once the voting procedure on Parts 2 & 3 was closed.

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## 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 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 conducted interference from rolling stock and the measurement method for verifying conformity of rolling stock to these limits.

The interference limits are only applicable to interoperable rolling stock which is intended to run on lines exclusively equipped with preferred track circuit 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.

This Technical Specification defines

- a set of interference current limits for RST (Rolling Stock) applicable for each of the following types of traction system:
  - DC (750 V, 1,5 kV and 3 kV);
  - 16,7 Hz AC;
  - 50 Hz AC.
- methodology for the demonstration of compatibility between rolling stock and track circuits,
- 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 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/TR 50126 series, 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 50163, Railway applications - Supply voltages of traction systems

EN 50238, Railway applications - Compatibility between rolling stock and train detection systems

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

UIC 550, Power Supply Installations for Passenger Stock

ENV 13005, Guide to the expression of uncertainty in measurements