Irish Standard
I.S. EN 50318:2018

Railway applications - Current collection systems - Validation of simulation of the dynamic interaction between pantograph and overhead contact line

I.S. EN 50318:2018

Incorporating amendments/corrigenda/National Annexes issued since publication:

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NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

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National Foreword

I.S. EN 50318:2018 is the adopted Irish version of the European Document EN 50318:2018, Railway applications - Current collection systems - Validation of simulation of the dynamic interaction between pantograph and overhead contact line

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50318

December 2018

ICS 29.280

Supersedes EN 50318:2002

English Version

Railway applications - Current collection systems - Validation of simulation of the dynamic interaction between pantograph and overhead contact line

Applications ferroviaires - Systèmes de captage de courant - Validation des simulations de l'interaction dynamique entre le pantographe et la caténaire

Bahnanwendungen - Stromabnahmesysteme - Validierung von Simulationssystemen für das dynamische Zusammenwirken zwischen Dachstromabnehmer und Oberleitung

European Committee for Electrotechnical Standardization
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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 50318:2018) has been prepared by CLC/SC 9XC "Electric supply and earthing systems for public transport equipment and ancillary apparatus (Fixed installations)" of CLC/TC 9X “Electrical and electronic applications for railways”.

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2019-12-07
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2021-12-07

This document supersedes EN 50318:2002.

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.

EN 50318:2018 includes the following significant technical changes with respect to EN 50318:2002:

— additional definitions for new used terms are included (Clause 3);

— the validation process is improved (Clause 5);

— a validation process for pantograph models is included (Clause 6);

— data requirements for overhead contact line modelling are improved (7.2);

— requirements for static checks for the overhead contact line are included (7.3);

— mathematical parameters to describe deviation from Gaussian distribution added to the required output (Clause 9);

— the validation with measured values is improved (Clause 10);

— measured data from line tests are included for three main types of overhead contact lines in Annex B, permitting a validation for standard systems without additional measurement;

— reference models are extended to different types of contact lines (Clause 11 and Annex A) for easy check of simulations before validation.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Directive 2008/57/EC see informative Annex ZZ, which is an integral part of this document.

Annexes designated “normative” are part of the body of the standard. In this standard, Annex A and Annex B are normative.

1 Scope

Simulation techniques are used to assess the dynamic interaction between overhead contact lines and pantographs, as part of the prediction of current collection quality. This document specifies functional requirements for the validation of such simulation methods to ensure confidence in, and mutual acceptance of the results of the simulations.

This document deals with:

– input and output parameters of the simulation;

– comparison with line test measurements, and the characteristics of those line tests;

– validation of pantograph models;

– comparison between different simulation methods;

– limits of application of validated methods to assessments of pantographs and overhead contact lines.

This document applies to the current collection from an overhead contact line by pantographs mounted on railway vehicles. It does not apply to trolley bus systems.

2 Normative references

The following documents are referred 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 50119:2009, *Railway applications — Fixed installations — Electric traction overhead contact lines*

EN 50206-1:2010, *Railway applications — Rolling stock — Pantographs: Characteristics and tests — Part 1: Pantographs for main line vehicles*

EN 50317:2012, *Railway applications —Current collection systems — Requirements for and validation of measurements of the dynamic interaction between pantograph and overhead contact line*

EN 50367:2012, *Railway applications — Current collection systems — Technical criteria for the interaction between pantograph and overhead line (to achieve free access)*

3 Terms and definitions

For the purpose of this document, the following terms and definitions 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

NOTE Further definitions from the Normative References can be used.

3.1
contact point
<for a pantograph> location of mechanical contact between a pantograph contact strip and a contact wire