Raudteealased rakendused. Vooluvõtusüsteemid. Pantograafi ja liinivahelise dünaamilise vastasmõju mõõtmiste esitatavad nõuded ja hindamine

Railway applications - Current collection systems - Requirements for and validation of measurements of the dynamic interaction between pantograph and overhead contact line

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NATIONAL FOREWORD

See Eesti standard EVS-EN 50317:2012 sisaldab Euroopa standardi EN 50317:2012 ingliskeelset teksti.	This Estonian standard EVS-EN 50317:2012 consists of the English text of the European standard EN 50317:2012.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 20.01.2012.	Date of Availability of the European standard is 20.01.2012.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 29.280, 45.060.10

Võtmesõnad: calibration, conversational mode, definitions, electric outlets, electric sockets, interaction, measurement, measuring instruments, overhead power lines, traction-current-collectin,

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English version

Railway applications - Current collection systems - Requirements for and validation of measurements of the dynamic interaction between pantograph and overhead contact line

Applications ferroviaires - Systèmes de captage de courant - Prescriptions et validation des mesures de l'interaction dynamique entre le pantographe et la caténaire

Bahnanwendungen - Stromabnahmesysteme - Anforderungen und Validierung von Messungen des dynamischen Zusammenwirkens zwischen Stromabnehmer und Oberleitung

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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Foreword

This document (EN 50317:2012) 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)	2012-12-26
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2014-12-26

This document supersedes EN 50317:2002 + A1:2004 + A2:2007.

EN 50317:2012 includes the following significant technical changes with respect to EN 50317:2002 + A1:2004 + A2:2007:

- new definitions for “cord force”, “mean contact force” and “total mean uplift force” (Clause 3);
- updated abbreviation lists (Clause 4);
- requirements for examination of total mean uplift force and aerodynamic portions (new Clause 6);
- a clear relation between the different portions of contact force (7.1);
- limits for aerodynamic influences of the force measurement system (7.2);
- the aerodynamic correction for measured contact forces (7.4);
- corrections and elaborations for calibration of force measurement (7.5);
- adjustment of filter requirements (7.6);
- adjustment of accuracy requirements for measurement of displacements (Clause 8);
- updated requirements for measurement of arcing (Clause 9).

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.

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(s) 2008/57/EC, see informative Annex ZZ, which is an integral part of this document.

1 Scope

This European Standard specifies the functional requirements for output and accuracy of measurements of the dynamic interaction between pantograph and overhead contact line.

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 50119 *Railway applications — Fixed installations — Electric traction overhead contact lines*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
collector head / pantograph head
pantograph equipment comprising the contact strips and their mountings

3.2
contact point
point of mechanical contact between a contact strip and a contact wire

3.3
working area of pantograph head
lateral and vertical range of possible contact points on the contact strips during normal operation

3.4
contact force
vertical force applied by the pantograph to the overhead contact line

Note 1 to entry: The contact force is the sum of the forces of all contact points

3.5
mean contact force F_m
statistical mean value of the contact force

Note 1 to entry: F_m is formed by the static and aerodynamic components of the pantograph contact force

3.6
static contact force
vertical force exerted upward by the collector head on the overhead contact line at standstill

3.7
standard deviation of contact force σ
square root of the sum of the square errors divided by the number of output values minus 1

3.8
aerodynamic force
additional vertical force applied by the pantograph as a result of air flow around the pantograph assembly. The aerodynamic force depends upon speed