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PIDURDUSSÜSTEEMID. OSA 2: KATSEMEETODID

Railway applications - Braking systems of multiple unit
trains - Part 2: Test methods

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 16185-2:2015+A1:2019 sisaldab Euroopa standardi EN 16185-2:2014+A1:2019 ingliskeelset teksti.	This Estonian standard EVS-EN 16185-2:2015+A1:2019 consists of the English text of the European standard EN 16185-2:2014+A1:2019.
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English Version

Railway applications - Braking systems of multiple unit trains - Part 2: Test methods

Applications ferroviaires - Systèmes de freinage pour trains automoteurs - Partie 2 : Méthodes d'essai

Bahnanwendungen - Bremssysteme für Triebzüge - Teil 2: Prüfverfahren

This European Standard was approved by CEN on 13 October 2014 and includes Amendment 1 approved by CEN on 9 September 2019.

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Contents	Page
European foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	6
4 Symbols and abbreviations	7
5 Requirements	7
5.1 General.....	7
5.2 Test specification	8
5.2.1 General.....	8
5.2.2 Identification of the parts to be tested	8
5.2.3 General conditions for the tests.....	9
6 Static tests program	9
6.1 General.....	9
6.2 Reports.....	10
6.3 Documentation.....	10
6.4 Methodology (for type tests only).....	11
6.4.1 Measurement of the friction application force.....	11
6.4.2 Measurement of the delay time.....	11
6.4.3 Measurement of the application force build-up time	11
6.4.4 Measurement of the application force release time.....	11
6.4.5 Measurement of the brake response time	11
6.4.6 Measurement of the pressure drop time in the brake pipe or the equalising reservoir of the driver's brake valve	12
6.4.7 Measurement of the pressure rise time in the brake pipe or the equalising reservoir of the driver's brake valve	12
6.4.8 Measurement of the dead time of the WSP dump valves.....	12
6.4.9 Measurement of the exhaust time of the WSP dump valves.....	12
6.4.10 Measurement of the fill time of the WSP dump valves	12
6.4.11 Measurement of air tightness	12
6.4.12 Measurement of braking and release times of EP assist brake.....	12
6.4.13 Evaluation of the longitudinal brake force applied to the track by Magnetic Track Brake or Eddy Current Brake	12
6.5 Test schedule	14
7 Dynamic tests schedule	52
7.1 General for dynamic tests	52
7.1.1 Preconditions	52
7.1.2 Test conditions.....	52
7.1.3 Measured variables to be recorded.....	53
7.1.4 Verification of deceleration and stopping distance.....	54
7.1.5 Definition of braked weight percentage (λ)	55
7.1.6 Measurement of the brake force contribution of the different brakes	55
7.2 Test program	56
Annex A (informative) Typical format for a test report for type or routine test	70
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2008/57/EC aimed to be covered	71

Bibliography	73
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European foreword

This document (EN 16185-2:2014+A1:2019) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2020 and conflicting national standards shall be withdrawn at the latest by May 2020.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document includes Amendment 1 approved by CEN on 9 September 2019.

This document supersedes EN 16185-2:2014.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2008/57/EC.

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

This series of European Standards *Railway applications — Braking systems of multiple unit trains* consists of:

- *Part 1: Requirements and definitions;*
- *Part 2: Test methods.*

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies test methods and acceptance criteria for a brake system for use in self propelling thermal and electric trains, in the following document called EMU/DMU, operating on routes of the European conventional rail system network.

This European Standard is applicable to:

- all new vehicles designs of self-propelling thermal and electric trains;
- all major overhauls of the EMU/DMU if they involve redesigning or extensive alteration to the brake system of the vehicle concerned.

This European Standard does not cover:

- locomotive hauled trains which are specified by EN 14198;
- mass transit rolling stock which is specified by EN 13452 (all parts);
- high speed trains being operated at speeds greater than 200 km/h which are specified by EN 15734-1 and tests in EN 15734-2.

The functional testing requirements set out in this European Standard assume the vehicles are fitted with brake system architecture as defined in EN 16185-1.

The braking performance obtained by applying the tests defined in this European Standard can be used to assess compliance with the required braking performance as defined in EN 16185-1.

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 14478:2005, *Railway applications — Braking — Generic vocabulary*

EN 15595, *Railway applications — Braking — Wheel slide protection*

EN 15663, *Railway applications — Definition of vehicle reference masses*

EN 15734-2:2010¹⁾, *Railway applications — Braking systems of high speed trains — Part 2: Test methods*

EN 16185-1:2014, *Railway applications — Braking systems of multiple unit trains — Part 1: Requirements and definitions*

EN 16207:2014, *Railway applications — Braking — Functional and performance criteria of Magnetic Track Brake systems for use in railway rolling stock*

EN 16334, *Railway applications — Passenger Alarm System — System requirements*

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

¹⁾ This document is currently impacted by the corrigendum EN 15734-2:2010/AC:2012.

EN ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025)*

EN 16834:2019, *Railway applications — Braking — Brake performance*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14478 and the following apply.

- 3.1**
test(ing) institute
institute that conforms to EN ISO/IEC 17025
- 3.2**
check
test performed as a discrete verification and/or visual inspection
- 3.3**
measurement
results recorded numerically, graphically or electronically
- 3.4**
type test
test of one or more devices, system or complete vehicle demonstrating that the design meets the required specifications and the relevant standards
- 3.5**
routine test
vehicle test that is performed during or after manufacture to confirm conformity to specified criteria
- 3.6**
application force
the force applied at the friction interface (e.g. the force between brake pad and brake disc, or between brake block and wheel tread, etc.)
- 3.7**
equivalent response time
sum of delay time and half of the brake force build-up time or brake force release time if some conditions are respected

[SOURCE: EN 14478:2005]

Note 1 to entry: The term is explained in EN 14531-1.

- 3.8**
application force release time
period of time commencing when the application force has reduced to 95 % of the stabilised application force and ending when 5 % of the stabilised application force has been achieved

- 3.9**
response time
- a) sum of the delay time and the application force build-up time during brake application, and
 - b) sum of the delay time and the application force release time during brake release