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NSAI Standards

Irish Standard
I.S. EN 15654-1:2018

# Railway applications - Measurement of vertical forces on wheels and wheelsets - Part 1: On-track measurement sites for vehicles in service

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## National Foreword

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN 15654-1

January 2018

ICS 45.060.01

English Version

# Railway applications - Measurement of vertical forces on wheels and wheelsets - Part 1: On-track measurement sites for vehicles in service

Applications ferroviaires - Mesurage des forces verticales à la roue et à l'essieu - Partie 1 : Sites de mesure en voie des véhicules en service

Bahnanwendungen - Messung von vertikalen Rad- und Radsatzkräften - Teil 1: Gleisseitige Messeinrichtungen für fahrende Fahrzeuge

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# European foreword

This document (EN 15654-1:2018) 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of an identical text or by endorsement, at the latest by July 2018, and conflicting national standards shall be withdrawn at the latest by July 2018.

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 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 document is the first part of a three part series collectively referred to as "*Railway applications — Measurement of vertical forces on wheels and wheelsets*". The series consists of:

— *Part 1: On-track measurement sites for vehicles in service*

— *Part 2: Test in workshop for new, modified and maintained vehicles*

— *Part 3: Approval and verification of on track measurement sites for vehicles in service* (CEN/TR)

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# Introduction

This European Standard has been developed to provide a common procedure for determining the axle load, wheel force and the mass of rail vehicles operating (in-service) in Europe.

This standard also details the evaluation of derived quantities such as asymmetric loading, overloading, vehicle mass and train mass. These quantities are obtained while the train is in-service and in motion.

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# 1 Scope

The scope of this European Standard is restricted to the measurement of vertical wheel forces and calculation of derived quantities on vehicles in service. Measurements of a train in motion are used to estimate the static forces.

Derived quantities can be:

— axle loads;

— side to side load differences of a wheel set, bogie, vehicle;

— overall mass of vehicle or train set;

— mean axle load of a vehicle or train set.

This standard is not concerned with the evaluation of:

— dynamic wheel force or derived quantities;

— wheel condition (i.e. shape, profile, flats);

— lateral wheel force;

— combination of lateral and vertical wheel forces.

The standard defines accuracy classes for measurements to be made at any speed greater than 5 km/h within the calibrated range, which may be up to line speed.

The aim of this standard is to obtain measurement results that give representative values for the distribution of vertical wheel forces of a running vehicle, which under ideal conditions will be similar to those that can be obtained from a standing vehicle.

This standard does not impose any restrictions on the types of vehicles that can be monitored, or on which networks or lines the measuring system can be installed.

The standard lays down minimum technical requirements and the metrological characteristics of a system for measuring and evaluating a range of vehicle loading parameters. Also defined are accuracy classes for the parameters measured and the procedure for verifying the calibration.

The measuring system proposed in this standard should not be considered as safety critical. If the measuring system is connected to a train traffic command and control system then requirements that are not part of this standard may apply.

Measuring systems complying with this standard have the potential to enhance safety in the railway sector. However, the current operating and maintenance procedures rather than this standard are mandatory for ensuring safety levels in European rail networks.

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