



Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
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ILNAS-EN 13848-6:2014+A1:2020

**Railway applications - Track - Track
geometry quality - Part 6:
Characterisation of track geometry
quality**

Applications ferroviaires - Voie - Qualité
géométrique de la voie - Partie 6:
Caractérisation de la qualité
géométrique de la voie

Bahnanwendungen - Oberbau -
Gleislagegüte - Teil 6: Charakterisierung
der geometrischen Gleislagequalität

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National Foreword

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**Railway applications - Track - Track geometry quality -
Part 6: Characterisation of track geometry quality**

Applications ferroviaires - Voie - Qualité géométrique
de la voie - Partie 6: Caractérisation de la qualité
géométrique de la voie

Bahnanwendungen - Oberbau - Qualität der
Gleisgeometrie - Teil 6: Charakterisierung der
geometrischen Gleislagequalität

This European Standard was approved by CEN on 3 February 2014 and includes Amendment 1 approved by CEN on 24 August 2020.

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European foreword

This document (EN 13848-6:2014+A1:2020) 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of an identical text or by endorsement, at the latest by May 2021, and conflicting national standards shall be withdrawn at the latest by May 2021.

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

This document includes Amendment 1 approved by CEN on 2020-07-24.

This document supersedes A1 EN 13848-6:2014 A1.

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.

This European Standard is one of the series EN 13848 “Railway applications – Track – Track geometry quality” as listed below:

- *Part 1: Characterisation of track geometry*
- *Part 2: Measuring systems – Track recording vehicles*
- *Part 3: Measuring systems – Track construction and maintenance machines*
- *Part 4: Measuring systems – Manual and lightweight devices*
- *Part 5: Geometric quality levels – Plain line*
- *Part 6: Characterisation of track geometry quality*

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1 Scope

This European Standard characterizes the quality of track geometry based on parameters defined in EN 13848-1 and specifies the different track geometry classes which should be considered.

This European Standard covers the following topics:

- description of track geometry quality;
- classification of track quality according to track geometry parameters;
- considerations on how this classification can be used;
- this European Standard applies to high-speed and conventional lines of 1 435 mm and wider gauge;
- this European Standard forms an integral part of EN 13848 series.

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 13848-1, *Railway applications - Track - Track geometry quality - Part 1: Characterization of track geometry*

EN 13848-5, *Railway applications - Track - Track geometry quality - Part 5: Geometric quality levels - Plain line, switches and crossings*

EN 14363, *Railway applications – Testing and simulation for the acceptance of running characteristics of railway vehicles – Running behaviour and stationary tests*

3 Terms, definitions, symbols and abbreviations

3.1 Terms and definitions

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

3.1.1

re-colouring

algorithm which modifies the spectral content of a signal aimed to compensate or apply the characteristics of a specific measuring system

Note 1 to entry: The re-colouring is used in EN 13848 series to convert a chord measurement signal into a *D1* or *D2* measurement signal.

3.1.2

track quality class (TQC)

characterization of track geometry quality as a function of speed and expressed as a range of TQIs

3.1.3

track quality index (TQI)

value that characterises track geometry quality of a track section based on parameters and measuring methods compliant with EN 13848 series

3.2 Symbols and abbreviations

For the purposes of this document, the following symbols and abbreviations apply.

Table 1 — Symbols and abbreviations

Symbol	Designation	Unit
<i>AL</i>	Alignment	mm
<i>ATQI</i>	Alternative Track Quality Index	
<i>CL</i>	Cross level	mm
<i>CoSD</i>	Combined standard deviation	mm
<i>D1</i>	Wavelength range $3\text{ m} < \lambda \leq 25\text{ m}$	m
<i>D2</i>	Wavelength range $25\text{ m} < \lambda \leq 70\text{ m}$	m
<i>D3</i>	Wavelength range $70\text{ m} < \lambda \leq 150\text{ m}$ for longitudinal level Wavelength range $70\text{ m} < \lambda \leq 200\text{ m}$ for alignment	m
λ	Wavelength	m
<i>G</i>	Track gauge	mm
<i>LL</i>	Longitudinal level	mm
<i>MBS</i>	Multi Body System	
<i>NTQI</i>	National Track Quality Index	
<i>PMA</i>	Point Mass Acceleration (method)	
<i>PSD</i>	Power Spectral Density	$\text{m}^2/(\text{s}^4/\text{m})$
<i>SD</i>	Standard deviation	mm
<i>SD_{LL}</i>	Standard deviation longitudinal level	mm
<i>SD_{AL}</i>	Standard deviation alignment	mm
<i>TQI</i>	Track Quality Index	
<i>TQI_{ref}</i>	Reference Track Quality Index	
<i>TQC</i>	Track Quality Class	
<i>V</i>	Speed	km/h
<i>VRA</i>	Vehicle Response Analysis (method)	

NOTE In this European Standard, *AL* stands for “alignment” and is not to be confused with *AL* standing for “alert limit” as defined in EN 13848-5:2008+A1:2010.