SLOVENSKI STANDARD
SIST EN 13036-7:2004

01-junij-2004

Značilnosti cestnih in letaliških površin - Preskusne metode - 7. del: Merjenje nepravilnosti na cestnih, vzletnih in drugih voziščih: preskus z merilno letvijo

Road and airfield surface characteristics - Test methods - Part 7: Irregularity measurement of pavement courses : the straightedge test

Oberflächeneigenschaften von Straßen und Flugplätzen - Prüfverfahren - Teil 7: Messung von Einzelunebenheiten von Verkehrsflächen: Messung mit der Richtlatte

Caractéristiques de surface des routes et aérodromes - Méthodes d'essai - Partie 7: Mesurage des déformations localisées des couches de roulement des chaussées : essai a la regle

Ta slovenski standard je istoveten z: **EN 13036-7:2003**

ICS:

17.040.20	Lastnosti površin	Properties of surfaces
93.080.10	Gradnja cest	Road construction
93.120	Gradnja letališč	Construction of airports

SIST EN 13036-7:2004 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13036-7

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ICS 17.040.20; 93.080.20

English version

Road and airfield surface characteristics - Test methods - Part 7: Irregularity measurement of pavement courses : the straightedge test

Caractéristiques de surface des routes et aérodromes - Méthodes d'essai - Partie 7: Mesurage des déformations localiséesdes couches de roulement des chaussées: essai à la règle

Oberflächeneigenschaften - Prüfverfahren - Teil 7: Messung von Einzelunebenheiten von Deckschichten für Straßen, Flugplätze und andere Verkehrsflächen - Messung mit der Richtlatte

This European Standard was approved by CEN on 28 November 2002.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document EN 13036-7:2003 has been prepared by Technical Committee CEN/TC 227 “Road materials”, 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 February 2004, and conflicting national standards shall be withdrawn at the latest by February 2004.

This European Standard is one of a series of standards as listed below.

EN 13036-1, *Road and airfield surface characteristics — Test methods — Part 1: Measurement of pavement surface macrotexture depth using a volumetric technique.*

prEN 13036-2, *Road and airfield surface characteristics — Test methods — Part 2: Procedure for determination of skid resistance of a pavement surface.*

EN 13036-3, *Road and airfield surface characteristics — Test methods — Part 3: Measurement of pavement surface horizontal drainability.*

EN 13036-4, *Road and airfield surface characteristics — Test methods — Part 4: Method for measurement of slip/skid resistance of a surface — The pendulum test.*

prEN (WI 00227131)-5, *Road longitudinal evenness Definition (and calculation methods) of the longitudinal evenness indices.*

prEN (WI 00227132)-6, *Road longitudinal evenness Longitudinal evenness — Profilametric test methods.*

EN 13036-7, *Road and airfield surface characteristics — Test methods — Part 7: Irregularity measurement of pavement courses — The straightedge test.*

Annex A is normative and Annex B is informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

This European Standard describes a simple apparatus and a test method for the measurement of irregularities in surfaces. Compliance within specified limits of irregularities is a prime determinant of quality in new construction. Irregularities in the surface course of roads can cause high dynamic wheel load variations and impede surface water drainage to the detriment of durability and adversely affect vehicle handling, safety, running costs and comfort.

NOTE This apparatus can also be used transversely to measure rut depth of in-service roads. This application is the subject of a separate standard prEN (WI 00227133).

1 Scope

This European Standard describes a standard apparatus and a test method (see NOTE of A.1) for measuring single irregularities attributable to quality defects in new surface course(s) of roads, airfields and other trafficked surfaces as well as in-service surfaces.

This test method is not applicable to providing information on profile or general unevenness. Single irregularities are by nature random, and consequently no routine sampling rates or precision data are specified.

2 Terms and definitions

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

2.1
irregularity
maximum variance of a surface from the measurement edge of the straightedge between two contact points of the straightedge when placed perpendicular to the surface

2.2
pavement
structure composed of one or more courses, to assist the passage of wheeled traffic over terrain

2.3
layer
structural element of a pavement laid in a single operation

2.4
surface
surface of an individual layer

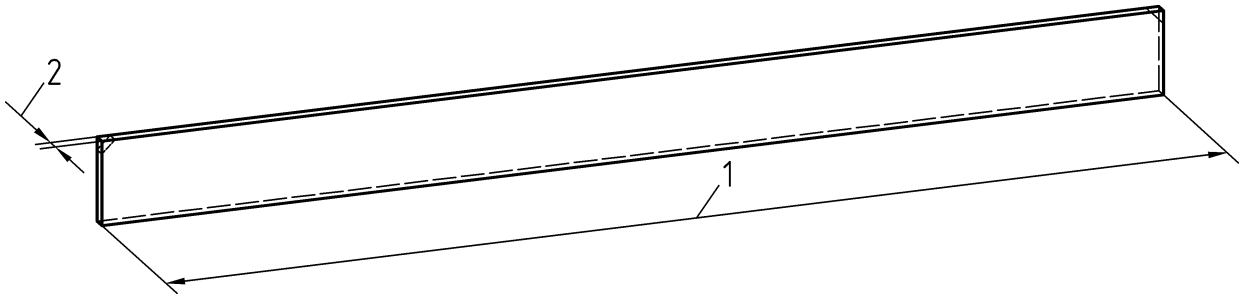
2.5
surface course
upper layer of the pavement which is in contact with the traffic

2.6
detritus
loose surface matter

3 Apparatus

3.1 Straightedge, to measure the distance of a surface from the plane of its measurement edge. The measurement edge of the straightedge shall be identifiable.

3.2 The straightedge shall be (3 000 ± 3) mm and of rigid construction such that when suspended at the end points its measurement edge shall not deviate from a true plane by more than ±0,5 mm at any point. The straightedge shall also be straight along its length and shall not deviate from straight by more than 1,5 mm. The horizontal width of the measurement edge shall be (25 ± 1) mm (see Figure 1).

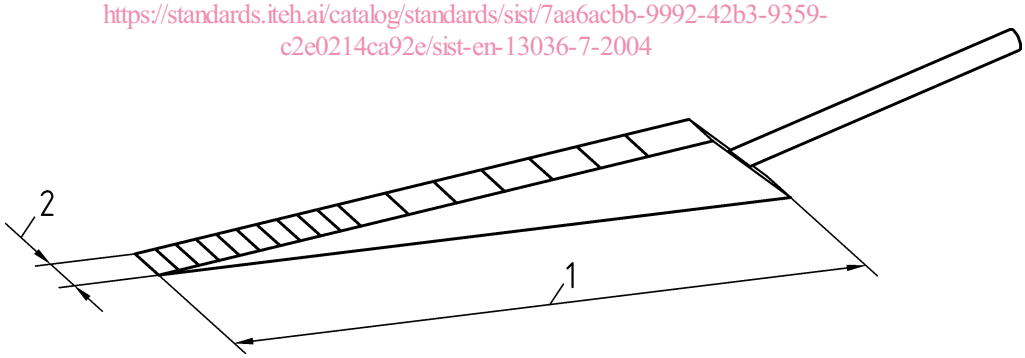


Key

1 length, l = (3 000 ± 3) mm
2 width, w = (25 ± 1) mm

Figure 1 — Sketch of a straightedge type (not to scale)

3.3 The distance between the measurement edge and the surface shall be measured with a calibrated wedge (300 ± 1) mm in length and (25 ± 1) mm in width. It shall be permanently marked on the slope plane in increments of 1mm for the first 10mm and 2,5 mm increments thereafter and the true height at each marked increment shall be accurate to ±0,1 mm (see Figure 2).



Key

1 length, l = (300 ± 1) mm
2 width, w = (25 ± 1) mm

Figure 2 — Sketch of a wedge type (not to scale)

3.4 The straightedge and its associated measurement wedge(s) shall be permanently marked with the same unique reference.

NOTE Other methods of measuring the distance between the measurement edge of the straightedge and the surface may be used, providing that the measuring device(s) can bridge minor discontinuities of the surface and can be demonstrated to achieve an equivalent standard of accuracy as required in 3.3.

4 Test methods

4.1 General

Ensure that the surface is free from detritus. Place the straightedge on the surface perpendicular to it, at any place and in any direction.

4.2 Longitudinal

Ensure that the surface is free from detritus. Place the straightedge on the surface perpendicular to it, and parallel to the centre line of the road.

4.3 Transverse

Ensure that the surface is free from detritus. Place the straightedge on the surface perpendicular to it, and perpendicular to the centreline of the road. The straightedge may be moved across the lane width and construction joints to determine the greatest irregularity.

NOTE This apparatus can also be used transversely to measure rut depth of in-service roads. This application is the subject of a separate standard prEN (WI 00227133).

4.4 Procedure

4.4.1 Place the wedge on the surface so that firm contact with the surface is obtained. The wedge shall be perpendicular to the measurement edge of the straightedge. Measurements may be taken from both sides of the straightedge, between two contact points of the straightedge and the surface.

4.4.2 Measure the distance between the measurement edge of the straightedge and the surface by inserting the wedge in the gap to refusal and by reading off the marked increments on the slope of the wedge. Measurements shall be made to ascertain the greatest distance between the straightedge and the surface to be measured.

4.4.3 Measurements shall be recorded to the nearest 1 mm

4.5 Test report

The test report shall contain the following information:

a) reference to this European standard;

b) test date;

c) reference number of the straight edge and wedge;

d) test location e.g. road number, lane, chainage reference;

e) type of measurement e.g. longitudinal, diagonal, transverse;

f) whether the surface has been trafficked;

g) signature of the person accepting the technical responsibility for the report.

NOTE For repeatability and reproducibility the location of each measurement position should be recorded as accurately as possible.

4.6 Reporting of results

4.6.1 If specified contractually the number and amplitude of single irregularities per specified unit length longitudinally and/or transversely and/or in any direction shall be recorded, e.g. where two default values are specified

— exceeding *a* mm, *n* per *x* linear metres,

— exceeding *b* mm, *n* per *x* linear metres,

where

a is a specified default value;

b is a larger specified default value;

n is number of measurements of *a* and *b*;

x is specified unit length, e.g. 100 linear metres.