



SLOVENSKI STANDARD
SIST EN 12676-2:2002
01-september-2002

Zaslони proti bleščanju - 2. del: Preskusne metode

Anti-glare systems for roads - Part 2: Test methods

Blendschutzsysteme für Straßen - Teil 2: Prüfverfahren

Systemes anti-éblouissement routiers - Partie 2: Méthodes d'essai

Ta slovenski standard je istoveten z: EN 12676-2:2000

[SIST EN 12676-2:2002](https://standards.iteh.ai/catalog/standards/sist/51e12c74-afd0-4f62-b735-6f46c7b0bbf6/sist-en-12676-2-2002)

<https://standards.iteh.ai/catalog/standards/sist/51e12c74-afd0-4f62-b735-6f46c7b0bbf6/sist-en-12676-2-2002>

ICS:

93.080.30	Cestna oprema in pomožne naprave	Road equipment and installations
-----------	----------------------------------	----------------------------------

SIST EN 12676-2:2002

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 12676-2:2002

<https://standards.iteh.ai/catalog/standards/sist/51e12c74-afd0-4f62-b735-6f46c7b0bbfe/sist-en-12676-2-2002>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12676-2

March 2000

ICS 93.080.30

English version

Anti-glare systems for roads - Part 2: Test methods

Systèmes anti-éblouissement routiers - Partie 2: Méthodes
d'essai

Blendschutzsysteme für Straßen - Teil 2: Prüfverfahren

This European Standard was approved by CEN on 18 February 2000.

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 Central Secretariat 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 Central Secretariat 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, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

(standards.iteh.ai)

SIST EN 12676-2:2002

<https://standards.iteh.ai/catalog/standards/sist/51e12c74-afd0-4f62-b735-6f46c7b0bbf6/sist-en-12676-2-2002>



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

CONTENTS

	Page
Foreword.....	3
1 Scope.....	4
2 Normative references.....	4
3 Definitions and symbols.....	4
4 Wind resistance test.....	5
5 Ageing tests.....	7
6 Measurement of the transmission factor.....	9
7 Test report.....	10
Bibliography.....	16

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 12676-2:2002

<https://standards.iteh.ai/catalog/standards/sist/51e12c74-afd0-4f62-b735-6f46c7b0bbfe/sist-en-12676-2-2002>

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 226 "Road equipment" the Secretariat of which is held by AFNOR.

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 September 2000, and conflicting national standards shall be withdrawn at the latest by September 2000.

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, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

This European Standard consists of the following Parts under the general title :

Anti-glare systems for roads :

- Part 1 : Performance and characteristics ;
- Part 2 : Test methods.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

NOTE This draft standard was submitted to the CEN Enquiry as prEN 12677:1997.

SIST EN 12676-2:2002

<https://standards.iteh.ai/catalog/standards/sist/51e12c74-afd0-4f62-b735-6f46c7b0bbfe/sist-en-12676-2-2002>

1 Scope

This Part of EN 12676 specifies laboratory test methods which are necessary to ascertain the following characteristics of anti-glare systems:

- wind resistance;
- behaviour during artificial ageing;
- measurement of the transmission factor.

2 Normative references

This Part of EN 12676 incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this Part of EN 12676 only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

ISO 4892-2	Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon arc sources
ISO 8256:1990	Plastics - Determination of tensile impact strength
ISO 9227:1990	Corrosion tests in artificial atmospheres - Salt spray tests
ISO/CIE 10526:1991	CIE standard colorimetric illuminants
CIE No 15.2:1986	Colorimetry
EN 12676-1	Anti-glare systems for roads – Part 1: Performances and characteristics

3 Definitions and symbols

For the purposes of this Part of EN 12676, the definitions and symbols of EN 12676-1 and the following apply:

- 3.1 residual strain:** the change in position of a point on the anti-glare system following the wind tunnel test, expressed as a percentage of its height above the fixed base of the anti-glare system
- 3.2 C_{ti} :** light transmission factor at specified angle of incidence i
- 3.3 I_i :** incident luminous intensity
- 3.4 I_{ti} :** luminous intensity transmitted by the anti-glare system at specified angle of incidence i
- 3.5 r_l :** longitudinal position measurement in the wind tunnel
- 3.6 r_t :** transversal position measurement in the wind tunnel

3.7 T : height of measuring position from fixed base

3.8 α_l : longitudinal residual strain (see figure 2)

3.9 α_t : transverse residual strain (see figure 1)

4 Wind resistance test

4.1 Principle

This clause describes the test to be carried out in order to assess the changes and deformations which are caused to anti-glare systems, together with their mountings, by the action of wind.

The wind tunnel test is referred to as the wind resistance test.

The test is carried out in a wind tunnel. The test sample is subjected to a steady horizontal air stream of 40 m/s (144 km/h). After the test, the values of the strains α_l and α_t exhibited by the system are calculated.

The sample is fixed to a base at a height of 800 mm \pm 50 mm above the turntable in the working section as shown in figures 3 and 4. The base is an open structure allowing the air to pass freely underneath.

iTeh STANDARD PREVIEW

At the start of the test the major axis of the system is placed perpendicular to the direction of the air stream. The test is carried out in two phases (see 4.4).

[SIST EN 12676-2:2002](https://standards.iteh.ai/catalog/standards/sist/51e12c74-afd0-4f62-b735-6f46c7b0bbfe/sist-en-12676-2-2002)

<https://standards.iteh.ai/catalog/standards/sist/51e12c74-afd0-4f62-b735-6f46c7b0bbfe/sist-en-12676-2-2002>

4.2 Apparatus

a) Wind tunnel, capable of producing an air stream of 40 m/s (144 km/h) in the centre of the working section, where a turntable is installed with the following characteristics (see figure 4):

- diameter: 4,50 m minimum;
- minimum range of rotation: +90° and -90°;
- with a possibility of viewing the sample during the test, either directly or by means of video recording.

b) Device for measuring displacement, accurate to within 5 mm.

4.3 Test sample

The anti-glare system used as a sample shall be a minimum of 4 m in length.

Such a length may be obtained by combining several units or by using fractions of a unit.

One sample shall be tested.

Prior to the test, store the sample for at least 24 h in a room where the temperature conditions are similar to those in the working section of the wind tunnel.

4.4 Procedure

4.4.1 General

Execute the test at a temperature above 10 °C.

With the wind tunnel switched off, mount the sample on the turntable such that its major axis is perpendicular to the direction of the air stream.

4.4.2 Initial measurements

In the case of systems which are composed of separate units, take measurements for each unit. In the case of systems which consist of a continuous screen, take equally spanned measurements (two per metre along the length of the sample). Mark these locations clearly.

Take measurements at the highest point of the system. For each of these measurement points, measure the following parameters:

- T , r_{0t} and r_{0l} as shown (figure 1 and 2);
- the temperature in the working section.

4.4.3 Wind test

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Switch the wind tunnel on. Achieve gradually an air stream speed of 40 m/s by increasing the speed at the rate of 1 m/s (40 s required to reach the full speed of 40 m/s).

When the air stream reaches a speed of 40 m/s, rotate the turntable in an anti-clockwise direction (as seen from above), at 15° per minute. Stop the motion at +90°. Switch off the wind tunnel and return the turntable to the initial position.

Take the first series of measurements as described in 4.4.4.

Restart the wind tunnel and, when the air stream reaches a speed of 40 m/s, rotate the turntable in a clockwise direction at 15° per minute. Stop the motion at -90°. Switch off the wind tunnel and return the turntable to the initial position.

Take the second series of measurements as described in 4.4.4.

NOTE If in the course of the test the sample breaks or is subjected to excessive deformation, the turntable should be stopped and the wind tunnel switched off. The angle at which the turntable has been stopped should be measured. The test should be considered unsuccessful.

4.4.4 Measurements after testing

After letting at least 5 min elapse after the wind tunnel has been switched off, repeat the procedure described in 4.4.2. to measure the horizontal distances r_i and r_t .

4.5 Expression of results

Calculate the strains d_t and d_i , as a percentage of T , from the measurements made in accordance with 4.4, as follows:

$$d_t = \frac{r_{0t} - r_t}{T} \times 100$$

$$d_i = \frac{r_{0i} - r_i}{T} \times 100$$

All dimensions being in the same units.

iTeh STANDARD PREVIEW (standards.iteh.ai)

5 Ageing tests

5.1 General

This clause specifies the equipment and laboratory procedures required to verify the durability of materials used in anti-glare systems, i.e.:

- for synthetic materials: artificial weathering process preceded and followed by a tensile impact test in accordance with ISO 8256:1990;
- for metallic parts: saline mist test in accordance with ISO 9227:1990.

5.2 Synthetic materials

5.2.1 Principle

The purpose of the artificial weathering process is to determine the reduction of the mechanical characteristics of the material tested. The reduction is expressed as a percentage of the tensile strength of the material at an ambient temperature of $(23 \pm 3) ^\circ\text{C}$ and at $(-30 \pm 3) ^\circ\text{C}$.

5.2.2 Artificial weathering

Execute the test in accordance with ISO 4892-2 by taking into account the following:

- a) test 40 specimens, 20 of which are aged by means of the artificial weathering test. The artificial weathering comprises the following phases:
 - UV radiation test;
 - artificial rain (duration: 102 min drying period, 18 min artificial rain period).