



SLOVENSKI STANDARD

SIST EN 2155-7:2001

01-junij-2001

Aerospace series - Test methods for transparent materials for aircraft glazing - Part 7: Determination of optical deviation

Aerospace series - Test methods for transparent materials for aircraft glazing - Part 7: Determination of optical deviation

Luft- und Raumfahrt - Prüfverfahren für transparente Werkstoffe zur Verglasung von Luftfahrzeugen - Teil 7: Bestimmung der optischen Ablenkung

Série aérospatiale - Méthodes d'essais pour matériaux transparents pour vitrages aéronautiques - Partie 7: Détermination de la déviation optique

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Ta slovenski standard je istoveten z: EN 2155-7:1997

ICS:

49.045	Konstrukcija in konstrukcijski elementi	Structure and structure elements
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EUROPEAN STANDARD

EN 2155-7

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 1997

ICS 49.040.10; 81.040.30; 83.140

Descriptors: aircraft industry, glazing, materials, transparency, tests, determination, optical properties, angles : geometry

English version

**Aerospace series - Test methods for transparent
materials for aircraft glazing - Part 7:
Determination of optical deviation**

Série aérospatiale - Méthodes d'essais pour matériaux transparents pour vitrages aéronautiques - Partie 7: Détermination de la déviation optique

Luft- und Raumfahrt - Prüfverfahren für transparente Werkstoffe zur Verglasung von Luftfahrzeugen - Teil 7: Bestimmung der optischen Ablenkung

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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.

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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.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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

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Foreword

This European Standard has been prepared by the European Association of Aerospace Manufacturers (AECMA).

After inquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of AECMA, prior to its presentation to CEN.

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 January 1998, and conflicting national standards shall be withdrawn at the latest by January 1998.

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.

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STANDARDS INSTITUTION OF BELGIUM

1 Scope

This standard specifies the method used for the determination of optical deviation caused to a beam of light passing through a transparent element material perpendicular to the optical axis of the system.

2 Definition

For the purposes of this standard, the following definition applies :

Optical deviation is defined as the angular deviation of a beam of light emerging from a transparent material compared with the direction of the incident beam.

3 Apparatus

3.1 Optical system of point light source, cross-wires, focusing lens, specimen holder and a screen

3.2 Upon the screen are traced concentric circles of specified radii such that they correspond to angles of deviation of 1,5 ; 3,0 ; 6,0 and 10,0 minutes of arc relative to the distance between specimen and screen.

The radius r of each circle is given by the formula :

$$r = 0,291 d.D$$

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where :

- r is the radius of circle, in millimetres ;
- d is the deviation, in minutes of arc ;
- D is the distance between specimen and screen, in metres.

The table 1 shows values of r corresponding to d expressed in minutes of arc and radians for two values of D .

Table 1

d		r in mm for :	
Minutes of arc	Radians	$D = 5$ m	$D = 8$ m
1,5	0,00043	2,2	3,5
3,0	0,00087	4,4	7,0
6,0	0,00175	8,7	14,0
10,0	0,00291	14,5	23,3

4 Specimens

The specimens are the elements themselves.

5 Procedure

5.1 The specimens shall be tested after careful removal of surface dust by wiping with a lint-free cloth.

5.2 The optical system is set up so that the image of the cross-wires is focused onto the screen and coincides with the centre of the concentric circles.

The test specimen is interposed between the cross-wires and the screen at distance D from the screen.

5.3 The deviation is displayed as the movement of the image from the centre of the concentric circles to one of the zones defined by the concentric circles specified in 3.2.

5.4 The specimens shall be scanned at intervals of 100 mm in mutually perpendicular directions (unless otherwise specified).

6 Expression of results

The values of the deviation shall be recorded and graphically represented in order to establish the relation between their position and their direction on the test specimen.

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7 Test report

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The test report shall include the following information :

- number of this standard ;
- description of the sampling method ;
- number of test specimens used ;
- dimensions of the test specimens used ;
- individual values of the optical deviation and their presentation in a diagram according to 6 ;
- observations on any circumstances liable to influence the results.