



SLOVENSKI STANDARD

SIST EN 2155-8:2001

01-junij-2001

Aerospace series - Test methods for transparent materials for aircraft glazing - Part 1: Determination of optical distortion

Aerospace series - Test methods for transparent materials for aircraft glazing - Part 1: Determination of optical distortion

Luft- und Raumfahrt - Prüfverfahren für transparente Werkstoffe zur Verglasung von Luftfahrzeugen - Teil 8: Bestimmung der optischen Verzerrung

Série aérospatiale - Méthodes d'essais pour matériaux transparents pour vitrages aéronautiques - Partie 8: Détermination de la distorsion optique

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ICS:

49.045	Konstrukcija in konstrukcijski elementi	Structure and structure elements
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EUROPEAN STANDARD
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Part 8

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English version

**Aerospace series
Test methods for transparent materials
for aircraft glazing
Part 8 : Determination
of optical distortion**

<p>Série aérospatiale Méthodes d'essais pour matériaux transparents pour vitrages aéronautiques Partie 8 : Détermination de la distorsion optique</p>	<p>Luft- und Raumfahrt Prüfverfahren für transparente Werkstoffe zur Verglasung von Luftfahrzeugen Teil 8 : Bestimmung der optischen Verzerrung</p>
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SIST EN 2155-8:2001

This European Standard was accepted by CEN on 1988-03-17. CEN members are bound to comply with the requirements of CEN 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 CEN 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 CEN Central Secretariat has the same status as the official versions.

CEN members are the national standards organizations of Austria, Belgium, 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 Bréderode 2, B-1000 Bruxelles

Brief history

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

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

According to the Common CEN/CENELEC Rules, following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxemburg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope and field of application

This standard specifies the method of measurement of optical distortion of sheets in transparent materials, which consists of determining the change of deviation over the entire area of the sheet.

The method allows sheets to be viewed at differing angles which are specified according to the quality of the sheet under test.

2 References

EN 2155-6 Aerospace series - Test methods for transparent materials for aircraft glazing - Part 6 - Determination of optical defects.

3 Definitions

Optical distortion is defined as local variation of optical deviation which results in distortion of the image perceived on viewing through the panel. Thus known straight lines become crooked or curved.

4 Apparatus

A grid board having line spacing of 25 mm is mounted vertically. A graticule having a system of equally spaced lines in two directions at 90° to each other is designed to be used with a suitable lantern projector so that at a distance of 4,5 m the projected image can be made coincident with the grid board. To avoid distortion of the image, measurement shall be restricted to a square about 1 m x 1 m at the grid board. An iris diaphragm may be useful to reduce the aperture of the lens. The specimen shall be mounted so that the area being examined is 1,2 m from the grid board. The mounting arrangement shall allow the specimen to be placed at varying inclination to the horizontal plane.

5 Specimens

For the purpose of this standard, the specimens are entire sheets. The entire surface of each specimen shall be carefully cleaned avoiding scratching or crazing.

6 Procedure

6.1 Maximum gradient

With the specimen mounted at the specified viewing angle, the maximum gradient of the projected image with respect to the grid board lines in both directions shall be assessed.

The specimen shall be rotated 90° in its own plane and the same assessment repeated. In cases of doubt the image of the defect shall be brought to the optical axis of the apparatus and projector adjustments made to overcome line shift due to displacement.

6.2 Sharp discontinuities

Sharp discontinuities "d" in the projected image shall be measured as indicated in figure 1.

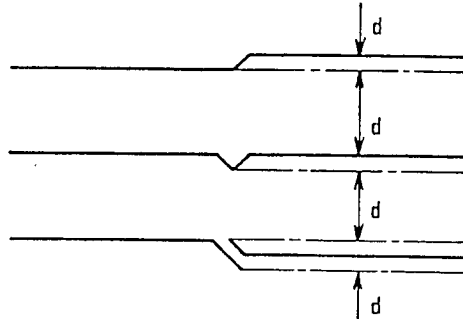


Figure 1

Note - The examination for sharp discontinuities, typically shown in figure 1 is necessary in addition to the examination for major and minor defects in EN 2155-6 since inhomogenities resulting in change of refractive index may not show up in EN 2155-6.

7 Expression of results

The gradient in each area of distortion shall be expressed as a slope e.g. 1 in 17; sharp discontinuities shall be expressed as measured as displacement in mm.

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8 Test report

At each of the specified viewing angles as specified in the material standard, the number of occasions when the gradient is steeper than the agreed limits shall be reported; likewise the number of occasions when the discontinuity "d" exceeds the specified limit shall be reported.