



SLOVENSKI STANDARD SIST EN 2591-602:2004

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Aerospace series - Elements of electrical and optical connection - Test methods - Part 602: Optical elements - Variation of attenuation and optical discontinuity

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Luft- und Raumfahrt - Elektrische und optische Verbindungselemente - Prüfverfahren - Teil 602: Optische Elemente - Dämpfungsänderung und optische Unterbrechung

Série aérospatiale - Organes de connexion électrique et optique - Méthodes d'essais - Partie 602 : Organes optiques - Variation d'atténuation et discontinuité optique

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ICS:

49.060 Štejni in optični elementi za zvezanje električnih in optičnih sistemov
Aerospace electric equipment and systems

SIST EN 2591-602:2004

en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 2591-602

November 2001

ICS 49.060

English version

**Aerospace series - Elements of electrical and optical connection
- Test methods - Part 602: Optical elements - Variation of
attenuation and optical discontinuity**

Série aérospatiale - Organes de connexion électrique et
optique - Méthodes d'essais - Partie 602: Organes optiques
- Variation d'atténuation et discontinuité optique

Luft- und Raumfahrt - Elektrische und optische
Verbindungselemente - Prüfverfahren - Teil 602: Optische
Elemente - Dämpfungsänderung und optische
Unterbrechung

This European Standard was approved by CEN on 4 June 2001.

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



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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 May 2002, and conflicting national standards shall be withdrawn at the latest by May 2002.

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.

1 Scope

This standard specifies methods of detecting variation of attenuation and optical discontinuity of the transmitted signal during environmental or mechanical testing for optical connection elements (including permanent connections) and fibre optic couplers.

It shall be used together with EN 2591-100.

2 Normative references

This European Standard 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 European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 2591-100 Aerospace series – Elements of electrical and optical connection – Test methods – Part 100: General ¹⁾

3 Preparation of specimens

3.1 Specimens shall be prepared as defined in the product standard and for each method of test:

- the fibre ends shall comply with requirements of EN 2591-100 (Fibre end preparation and termination cleaning);
- the fibre ends shall be fixed to the light launch and light detector systems as defined in EN 2591-100;
- the fibre/cable used for the test shall meet the requirements of the optical connection element or coupler;
- movement of the fibres/cables and temporary joints shall be minimized during the test set-up and testing process; <https://standards.iteh.ai/catalog/standards/sist/3961034f-94b0-40e2-970f-880e7760184/sist-en-2591-602-2004>
- the minimum bend radius of the fibre/cable shall not be exceeded.

Unless otherwise specified, specimens shall be fitted with normal accessories and terminated with $(2 \pm 0,2)$ m length of cable. If necessary, temporary joints shall be used.

If a reference cable/fibre is required, its length shall be 4 m and it shall be prepared from the same batch and terminated by the same method used for the specimens.

Optical contacts shall be assembled into the appropriate optical connection element.

3.2 Unless otherwise indicated in the technical specification, the following details shall be specified:

- number of measurements to be averaged;
- number of channels to be tested in a multi-channel device;
- minimum bandwidth of the detection device.

3.2.1 Variation of attenuation (Method A)

- Maximum permissible variation of attenuation
- Sampling rate of attenuation
- Type of cable/fibre

3.2.2 Optical discontinuity (Method B)

- Duration of discontinuity to be measured
- Acceptable number of discontinuities
- Type of cable/fibre
- Discontinuity threshold in dB

¹⁾ Published as AECMA Prestandard at the date of publication of this standard

4 Apparatus

It shall comprise:

- a Light Launch System (LLS) as defined in EN 2591-100;
- a Light Detector System (LDS) as defined in EN 2591-100.

5 Methods

5.1 Procedure

5.1.1 Method A – Variation of attenuation

Unless otherwise specified, the specimen under test shall be connected through the cable/fibre to the measuring equipments.

Set the attenuation level to zero to obtain a reference value.

Proceed to the test and check continuously the variation of attenuation.

Figure 1 shows a typical test arrangement.

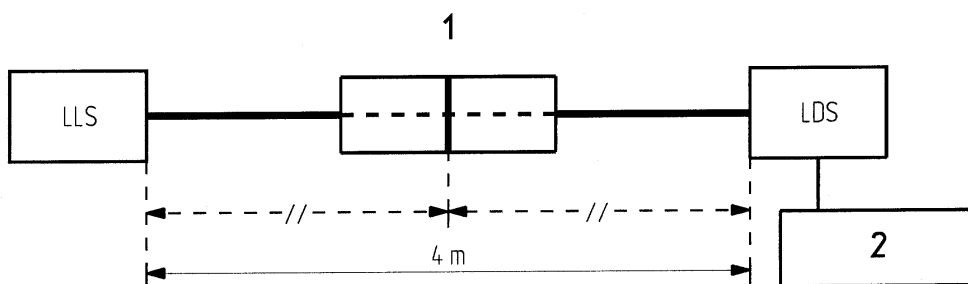
5.1.2 Method B – Optical discontinuity

Unless otherwise specified, the specimen under test shall be connected through the cable/fibre to the measuring equipments.

Adjust thresholds (dB drop and time duration) as specified in the product standard.

Check the transmitted signal, any discontinuities detected at this point shall be traced to their source, and eliminated. Discontinuities which cannot be eliminated shall be accounted for in the performance assessment of the test specimen.

Figure 1 shows a typical test arrangement.



Key

- 1 Specimen
- 2 Processing system

Figure 1

5.2 Requirements

Discontinuities and/or variation of attenuation shall be recorded according to the characteristics defined in the product standard.

Extraneous discontinuities and/or variation of attenuation attributable to the malfunction of the measuring equipment shall be discounted.

The number of discontinuities and/or variations of attenuation shall not exceed that specified in the product standard.