



SLOVENSKI STANDARD SIST EN 2591-606:2004

01-maj-2004

Aerospace series - Elements of electrical and optical connection - Test methods - Part 606: Optical elements - Crosstalk

Aerospace series - Elements of electrical and optical connection - Test methods - Part 606: Optical elements - Crosstalk

Luft- und Raumfahrt - Elektrische und optische Verbindungselemente - Prüfverfahren - Teil 606: Optische Elemente - Übersprechen

Série aérospatiale - Organes de connexion électrique et optique - Méthodes d'essais - Partie 606: Organes optiques - Diaphonie

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Ta slovenski standard je istoveten z: EN 2591-606:2002

ICS:

49.060 Štejni in optični elementi za povezavo električnih in optičnih sistemov v letalski in vesoljski opremi in sistemih
Aerospace electric equipment and systems

SIST EN 2591-606:2004

en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 2591-606

June 2002

ICS 49.060

English version

**Aerospace series - Elements of electrical and optical connection
- Test methods - Part 606: Optical elements - Crosstalk**

Série aérospatiale - Organes de connexion électrique et
optique - Méthodes d'essais - Partie 606: Organes optiques
- Diaphonie

Luft- und Raumfahrt - Elektrische und optische
Verbindungselemente - Prüfverfahren - Teil 606: Optische
Elemente - Übersprechen

This European Standard was approved by CEN on 8 February 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, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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

Foreword

This document (EN 2591-606:2002) 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 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 December 2002, and conflicting national standards shall be withdrawn at the latest by December 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, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom

1 Scope

This standard specifies a method of measuring the forward and backward crosstalk of light between multi-channel optical connection elements.

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⁾
EN 2591-601	Aerospace series – Elements of electrical and optical connection – Test methods – Part 601: Optical elements – Insertion loss ²⁾
TR 4257	Aerospace series – Elements of electrical and optical connection – Relationship between the numbering systems for parts of EN 2591 ³⁾

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3 Preparation of specimens

3.1 Specimens shall be fitted with normal accessories and terminated as specified in the product standard. All cavities shall be fitted with terminated contacts.

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

- type and length of cable/fibre;
- maximum permissible crosstalk (forward and backward);
- for specimens with more than two paths, the selection of the paths to be measured;
- for specimens of asymmetrical optical design the measurements shall be carried out with each fibre alternatively excited in both directions.

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;
- Temporary Joints (TJ) as defined in EN 2591-601;
- a Terminator (T) as defined in EN 2591-100 to provide a non-reflective termination.

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

2) See TR 4257.

3) Published as AECMA Technical Report at the date of publication of this standard

5 Method

5.1 Procedure

See figure 1.

- Before inserting the specimen, connect LLS to one end of the fibre 1 and connect LDS to the opposite end. Maximize the output power and measure P_o .
- Insert the specimen on fibre 1 at $L/2$ and introduce fibre 2 and connect T.
- Connect a first LDS to adjacent fibre 2 and measure P_b .
- Connect a second LDS to the opposite end of this fibre and measure P_f

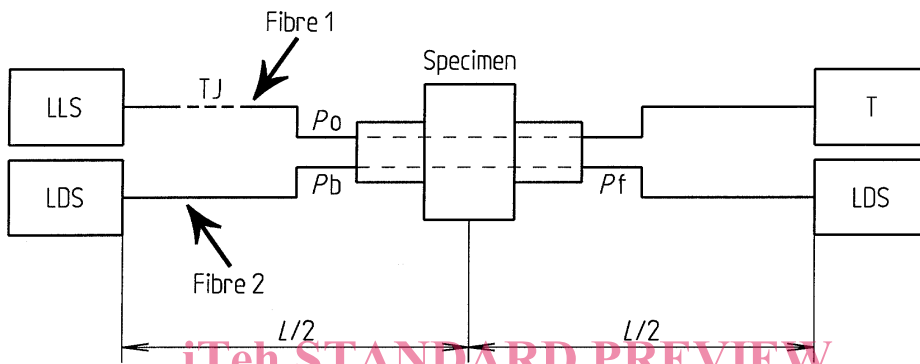


Figure 1

- Calculate the forward and backward crosstalk using the following formulae:

$$\text{Forward crosstalk (dB)} = -10 \log \left[\frac{P_f}{P_o} \right]$$

$$\text{Backward crosstalk (dB)} = -10 \log \left[\frac{P_b}{P_o} \right]$$

where:

- P_b : backward power output of fibre 2
- P_f : forward power output of fibre 2
- P_o : optical power in fibre 1
- $L/2$: Cable length "L" divided by two