

Fibre optic interconnecting devices and passive components performance standard

**Part 2-3: Non-connectorised single
mode 1xN and 2xN
non-wavelength-selective branching
devices for Category U — Uncontrolled
environment**

The European Standard EN 61753-2-3:2001 has the status of a
British Standard

ICS 33.180.20

National foreword

This British Standard is the official English language version of EN 61753-2-3:2001. It is identical with IEC 61753-2-3:2001.

The UK participation in its preparation was entrusted to Technical Committee GEL/86, Fibre optics, to Subcommittee GEL/86/2, Fibre optic interconnecting devices and passive components, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

From 1 January 1997, all IEC publications have the number 60000 added to the old number. For instance, IEC 27-1 has been renumbered as IEC 60027-1. For a period of time during the change over from one numbering system to the other, publications may contain identifiers from both systems.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

This British Standard, having been prepared under the direction of the Electrotechnical Sector Policy and Strategy Committee, was published under the authority of the Standards Policy and Strategy Committee on 28 November 2001

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 18, an inside back cover and a back cover.

The BSI copyright date displayed in this document indicates when the document was last issued.

Amendments issued since publication

Amd. No.	Date	Comments

© BSI 28 November 2001

ISBN 0 580 38709 7

**Fibre optic interconnecting devices
and passive components performance standard
Part 2-3: Non-connectorised single mode 1xN and 2xN
non-wavelength-selective branching devices for Category U -
Uncontrolled environment
(IEC 61753-2-3:2001)**

Norme de qualité de fonctionnement des
dispositifs d'interconnexion et composants
passifs à fibres optiques
Partie 2-3: Dispositifs de couplage
non-connectorisés monomodes
1xN et 2xN ne dépendant pas
de la longueur d'onde pour catégorie U -
Environnement non contrôlé
(CEI 61753-2-3:2001)

Lichtwellenleiter - Verbindungselemente
und passive Bauteile - Betriebsverhalten
Teil 2-3: Nicht steckbare
wellenlängenunabhängige Einmoden-
1xN- und -2xN-Verzweiger
für die Kategorie U -
Unkontrollierte Umgebung
(IEC 61753-2-3:2001)

This European Standard was approved by CENELEC on 2001-10-01. CENELEC 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 CENELEC 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 86B/1509/FDIS, future edition 1 of IEC 61753-2-3, prepared by SC 86B, Fibre optic interconnecting devices and passive components, of IEC TC 86, Fibre optics, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61753-2-3 on 2001-10-01.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2002-07-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2004-10-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annexes B and ZA are normative and annex A is informative.

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61753-2-3:2001 was approved by CENELEC as a European Standard without any modification.

CONTENTS

1	Scope	4
2	Normative references.....	4
3	Test.....	5
4	Test report.....	6
5	Performance requirements.....	6
5.1	Sample size, sequencing and grouping	6
5.2	Test details and requirements.....	6
Annex A (informative) Examples of attenuation requirements of 1×N and 2×N branching devices		14
Annex B (normative) Sample size, sequencing and grouping.....		16
Annex ZA (normative) Normative references to international publications with their corresponding European publications		17
Table A.1 – Attenuation requirements of balanced branching devices having the most common port configurations for Class 1 application.....		14
Table A.2 – Attenuation requirements of 1×2 and 2×2 unbalanced branching devices having the most common port configurations for Class 1 application.		14
Table A.3 – Attenuation requirements of balanced branching devices having the most common port configurations for Class 2 application.....		15
Table A.4 – Attenuation requirements of balanced branching devices having the most common port configurations for Class 3 application.....		15
Table B.1 – Sample size and sequencing and grouping of tests		16

FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS PERFORMANCE STANDARD –

Part 2-3: Non-connectorised single-mode 1×N and 2×N non-wavelength-selective branching devices for Category U – Uncontrolled environment

1 Scope

This part of IEC 61753 contains the minimum initialisation test and measurement requirements and severities which a branching device shall satisfy in order to be categorised as meeting the IEC standard. The requirements cover balanced non-connectorised single-mode 1×N and 2×N non-wavelength-selective branching devices for use in an IEC Category U environment (N is the number of output ports). The specifications of unbalanced branching devices are limited to 1×2 and 2×2 devices because they are the most commonly used.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61753. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 61753 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

IEC 60793-1-1:1995, *Optical fibres – Part 1: Generic specification – Section 1: General*

IEC 61300 (all parts), *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures*

IEC 61300-2-1:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-1: Tests – Vibration (sinusoidal)*

IEC 61300-2-4:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-4: Tests – Fibre/cable retention*

IEC 61300-2-5:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-5: Tests – Torsion/twist*

IEC 61300-2-12:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-12: Tests – Impact*

IEC 61300-2-14:1997, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-14: Tests – Maximum input power*

IEC 61300-2-17:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-17: Tests – Cold*

IEC 61300-2-18:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-18: Tests – Dry heat – High temperature endurance*

IEC 61300-2-19:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-19: Tests – Damp heat (steady state)*

IEC 61300-2-22:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-22: Tests – Change of temperature*

IEC 61300-2-26:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-26: Tests – Salt mist*

IEC 61300-2-27:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-27: Tests – Dust – Laminar flow*

IEC 61300-2-28:1995, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-28: Tests – Industrial atmosphere (sulphur dioxide)*

IEC 61300-2-45:1999, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-45: Tests – Durability test by water immersion*

IEC 61300-3-2:1999, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-2: Examinations and measurements – Polarization dependence of attenuation in a single-mode fibre optic device*

IEC 61300-3-3:1997, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-3: Examinations and measurements – Monitoring change in attenuation and in return loss (multiple paths)*

IEC 61300-3-5:2001, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-5: Examinations and measurements – Wavelength dependence of attenuation*

IEC 61300-3-6:1997, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-6: Examinations and measurements – Return loss*

IEC 61300-3-20:2001, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-20: Examinations and measurements – Directivity of fibre optic branching devices*

IEC 61753-2-1:2000, *Fibre optic interconnecting devices and passive components performance standard – Part 2-1: Fibre optic connectors terminated on single-mode fibre for category U – Uncontrolled environment*

3 Test

All test methods are in accordance with the IEC 61300 series of standards.

The samples shall be terminated onto single-mode fibres according to Type B1.1 of IEC 60793-1-1 in either coated fibres (primary and secondary) or reinforced cable format.

Each test defines the number of samples to be evaluated.

All tests shall be carried out to validate performance over the optical pass-bands of 1 260 nm to 1 360 nm and 1 480 nm to 1 580 nm. This is the minimum requirement for devices corresponding to Class 1 as described in 5.2. Extensions to these windows are covered by classes 2 and 3. Class 2 specifies additional attenuation limits for 1 450 nm to 1 480 nm and 1 580 nm to 1 600 nm. Class 3 devices shall meet Class 2 requirements and additionally have defined attenuation limits for 1 600 nm to 1 650 nm.