

**Fibre optic interconnecting devices and passive components - Performance standard - Part 091-2: Non-connectorised single-mode fibre optic pigtailed circulators for category C - Controlled environment (IEC 61753-091-2:2012)**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

See Eesti standard EVS-EN 61753-091-2:2013 sisaldab Euroopa standardi EN 61753-091-2:2013 ingliskeelset teksti.	This Estonian standard EVS-EN 61753-091-2:2013 consists of the English text of the European standard EN 61753-091-2:2013.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 11.01.2013.	Date of Availability of the European standard is 11.01.2013.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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ICS 33.180.20

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**Fibre optic interconnecting devices and passive components -  
Performance standard -  
Part 091-2: Non-connectorized single-mode fibre optic pigtailed  
circulators for category C -  
Controlled environment  
(IEC 61753-091-2:2012)**

Dispositifs d'interconnexion et composants  
passifs à fibres optiques -  
Norme de performance -  
Partie 091-2: Circulateurs à fibres  
optiques unimodales munis de fibres  
amorces non connectorisées pour la  
catégorie C -  
Environnements contrôlés  
(CEI 61753-091-2:2012)

Lichtwellenleiter -  
Verbindungselemente und passive  
Bauteile -  
Betriebsverhalten -  
Teil 091-2: Nicht mit Steckverbindern  
versehene Einmoden-Lichtwellenleiter-  
Zirkulatoren mit Pigtails der Kategorie C -  
Kontrollierte Umgebung  
(IEC 61753-091-2:2012)

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**CENELEC**

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

**Management Centre: Avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document 86B/3364/CDV, future edition 1 of IEC 61753-091-2, 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 approved by CENELEC as EN 61753-091-2:2013.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2013-08-16
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2015-11-16

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## Endorsement notice

The text of the International Standard IEC 61753-091-2:2012 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61300-3-38	NOTE Harmonized as EN 61300-3-38.
IEC 61753-1	NOTE Harmonized as EN 61753-1.
IEC 62077	NOTE Harmonized as EN 62077.

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60793-2-50	2008	Optical fibres - Part 2-50: Product specifications - Sectional specification for class B single-mode fibres	EN 60793-2-50	2008
IEC 60794-2-50	-	Optical fibre cables - Part 2-50: Indoor cables - Family specification for simplex and duplex cables for use in terminated cable assemblies	EN 60794-2-50	-
IEC 61300-2-1	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-1: Tests - Vibration (sinusoidal)	EN 61300-2-1	-
IEC 61300-2-4	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-4: Tests - Fibre/cable retention	EN 61300-2-4	-
IEC 61300-2-9	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-9: Tests - Shock	EN 61300-2-9	-
IEC 61300-2-14	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-14: Tests - High optical power	EN 61300-2-14	-
IEC 61300-2-19	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-19: Tests - Damp heat (steady state)	EN 61300-2-19	-
IEC 61300-2-22	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-22: Tests - Change of temperature	EN 61300-2-22	-
IEC 61300-2-42	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-42: Tests - Static side load for connectors	EN 61300-2-42	-
IEC 61300-2-44	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 2-44: Tests - Flexing of the strain relief of fibre optic devices	EN 61300-2-44	-

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61300-3-2	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-2: Examinations and measurements - Polarization dependent loss in a single-mode fibre optic device	EN 61300-3-2	-
IEC 61300-3-7	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-7: Examinations and measurements - Wavelength dependence of attenuation and return loss of single mode components	EN 61300-3-7	-
IEC 61300-3-28	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-28: Examinations and measurements - Transient loss	EN 61300-3-28	-
IEC 61300-3-32	-	Fibre optic interconnecting devices and passive components - Basic test and measurement procedures - Part 3-32: Examinations and measurements - Polarisation mode dispersion measurement for passive optical components	EN 61300-3-32	-

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## **FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS – PERFORMANCE STANDARD –**

### **Part 091-2: Non-connectorized single-mode fibre optic pigtailed circulators for category C – Controlled environments**

#### **1 Scope**

This part of IEC 61753 contains the minimum test and measurement requirements and severities which a fibre optic circulator as specified by IEC 62077 should satisfy in order to be categorized as meeting the requirements of circulators used in controlled environments as specified in IEC 61753-1. The requirements cover non-connectorized single-mode fibre optic pigtailed circulators for category C used in controlled environments.

#### **2 Normative references**

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60793-2-50:2008, *Optical fibres – Part 2-50: Product specifications – Sectional specification for class B single-mode fibres*

IEC 60794-2-50, *Optical fibre cables Part 2-50: Indoor optical fibre cables – Family specification for simplex and duplex cables for use in terminated cable assemblies*

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

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

IEC 61300-2-9, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-9: Tests – Shock*

IEC 61300-2-14<sup>1</sup>, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-14: Tests – High optical power*

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

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

IEC 61300-2-42, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-42: Tests – Static side load for connectors*

IEC 61300-2-44, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 2-44: Tests – Flexing of the strain relief of fibre optic devices*

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1 A new third edition is due to be published.

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

IEC 61300-3-7, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-7: Examinations and measurements – Wavelength dependence of attenuation and return loss of single mode components*

IEC 61300-3-28, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-28: Examinations and measurements – Transient loss*

IEC 61300-3-32, *Fibre optic interconnecting devices and passive components – Basic test and measurement procedures – Part 3-32: Examinations and measurements – Polarization mode dispersion measurement for passive optical components*

### 3 Test

All test methods are in accordance with a specific IEC 61300 standard, of which parts applicable to this standard are mentioned in 5.2 (see Table 2).

The samples shall be terminated onto single-mode fibres as per IEC 60793-2-50:2008 category B1.1 or B1.3 or B6 in either coated fibres (primary and secondary) or reinforced cable format as per IEC 60794-2-50.

Table 1 is intended to provide guidance on the wavelength ranges of the various spectral bands. It is not intended for specification. Values of operating wavelength used in performance verification shall be specified between the customer and supplier or shall be as defined in the manufacturer's specification.

**Table 1 – Single-mode spectral bands**

Band	Descriptor	Range nm
O-band	Original	1 260 to 1 360
E-band	Extended	1 360 to 1 460
S-band	Short wavelength	1 460 to 1 530
C-band	Conventional	1 530 to 1 565
L-band	Long wavelength	1 565 to 1 625
U-band	Ultralong wavelength	1 625 to 1 675
Source: ITU-T Supplement 39 [1] <sup>2</sup> .		

(C+L)-band is used in Table 2, which means a wavelength range from 1 530 nm to 1 625 nm.

### 4 Test report

Fully documented test reports and supporting evidence shall be prepared and be available for inspections as evidence that the tests have been carried out and complied with.

<sup>2</sup> References in square brackets refer to the Bibliography.