



**SLOVENSKI STANDARD**  
**oSIST prEN IEC 61753-042-02:2025**  
**01-marec-2025**

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**Optični spojni elementi in pasivne komponente - Tehnični standard - 042-2. del:  
Odsevne naprave OTDR vrste vtič-repek in vtič-vtičnica za kategorijo C -  
Nadzorovana okolja**

Fibre optic interconnecting devices and passive components - Performance standard -  
Part 042-02: Plug-pigtail-style and plug-receptacle-style of OTDR reflecting devices for  
category c - Controlled environments

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Dispositifs d'interconnexion et composants passifs à fibres optiques - Norme de  
performance - Partie 042-2: Dispositifs de réflexion pour OTDR de modèle à fiche-fibre  
amorce et modèle à fiche-embase pour catégorie c - Environnements contrôlés

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**ICS:**

33.180.20	Povezovalne naprave za optična vlakna	Fibre optic interconnecting devices
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# 86B/4985/CDV

## COMMITTEE DRAFT FOR VOTE (CDV)

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IEC SC 86B : FIBRE OPTIC INTERCONNECTING DEVICES AND PASSIVE COMPONENTS	
SECRETARIAT: Japan	SECRETARY: Mr Ryo Koyama
OF INTEREST TO THE FOLLOWING COMMITTEES:	HORIZONTAL FUNCTION(S):
ASPECTS CONCERNED:	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING  <b>Attention IEC-CENELEC parallel voting</b>  The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.  The CENELEC members are invited to vote through the CENELEC online voting system.	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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TITLE:

**Fibre optic interconnecting devices and passive components - Performance standard - Part 042-02: Plug-pigtail-style and plug-receptacle-style of OTDR reflecting devices for category C - Controlled environments**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**FIBRE OPTIC INTERCONNECTING DEVICES AND  
PASSIVE COMPONENTS – PERFORMANCE STANDARD –****Part 042-02: Plug-pigtail-style and plug-receptacle-style  
OTDR reflecting devices for category C –  
Controlled environments**

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International Standard IEC 61753-042-02 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components of IEC technical committee 86: Fibre optics.

This first edition cancels and replaces the first edition of IEC 61753-042-2, published in 2014, and constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC 61753-042-2.:

a) Harmonization of test requirements with requirements from IEC 61753-1:2018

b) Harmonization of tests with tests from IEC 61753-1:2018

The text of this standard is based on the following documents:

FDIS	Report on voting
86B/xxxx/FDIS	86B/xxxx/RVD

81  
82 Full information on the voting for the approval of this standard can be found in the report on  
83 voting indicated in the above table.

84 This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

85 A list of all parts of IEC 61753 series, under the general title *Fibre optic interconnecting devices*  
86 *and passive components performance standards*, can be found on the IEC website.

87 The committee has decided that the contents of this publication will remain unchanged until the  
88 stability date indicated on the IEC web site under "<https://webstore.iec.ch>" in the data related  
89 to the specific publication. At this date, the publication will be

- 90 • reconfirmed,
- 91 • withdrawn,
- 92 • replaced by a revised edition, or
- 93 • amended.

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96 **FIBRE OPTIC INTERCONNECTING DEVICES AND**  
 97 **PASSIVE COMPONENTS – PERFORMANCE STANDARD –**

98  
 99 **Part 042-02: Plug-pigtail-style and plug-receptacle-style**  
 100 **OTDR reflecting devices for category C –**  
 101 **Controlled environments**  
 102  
 103  
 104  
 105

106 **1 Scope**

107 This part of IEC 61753 contains the minimum initial performance, test and measurement  
 108 requirements and severities which plug-pigtail style and plug-receptacle style OTDR reflecting  
 109 devices need to satisfy in order to be categorized as meeting the requirements of category C-  
 110 Controlled environments, as defined in Annex A of IEC 61753-1 [1]<sup>1</sup>. These devices are utilized  
 111 for out-of-band OTDR testing of an optical fibre system.

112 Annex B provides information concerning these devices.

113 **2 Normative references**

114 The following documents are referred to in the text in such a way that some or all of their content  
 115 constitutes requirements of this document. For dated references, only the edition cited applies.  
 116 For undated references, the latest edition of the referenced document (including any  
 117 amendments) applies.

118 IEC 60793-2-50, *Optical fibres – Part 2-50: Product specifications – Sectional specification for*  
 119 *class B single-mode fibres* [oSIST prEN IEC 61753-042-02:2025](https://standards.iteh.ai/catalog/standards/sist/5002911b-4b50-4d30-8908-f709723c1911/osist-pren-iec-61753-042-02-2025)

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

122 IEC 61300-1, *Fibre optic interconnecting devices and passive components – Basic test and*  
 123 *measurement procedures – Part 1: General and guidance*

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

126 IEC 61300-2-2, *Fibre optic interconnecting devices and passive components – Basic test and*  
 127 *measurement procedures – Part 2-2: Tests – Mating durability*

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

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

132 IEC 61300-2-6, *Fibre optic interconnecting devices and passive components – Basic test and*  
 133 *measurement procedures – Part 2-6: Tests – Tensile strength of coupling mechanism*

<sup>1</sup> Numbers in square brackets refer to the Bibliography.

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

136 IEC 61300-2-14, *Fibre optic interconnecting devices and passive components – Basic test and*  
137 *measurement procedures – Part 2-14: Tests – High optical power*

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

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

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

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

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

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

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

153 IEC 61300-3-6, *Fibre optic interconnecting devices and passive components - Basic test and*  
154 *measurement procedures - Part 3-6: Examination and measurements – Return loss*  
155

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

159 IEC 62074-1, *Fibre optic interconnecting devices and passive components – Fibre optic WDM*  
160 *devices - Part 1: Generic specification*

161 IEC TS 62627-09, *Fibre optic interconnecting devices and passive components - Vocabulary*  
162 *for passive optical devices*

### 163 **3 Terms, definitions and abbreviations**

164 For the purposes of this document, the terms and definitions given in IEC 62074-1 and  
165 IEC TS 62627-09 and the following terms and definitions apply.

166 ISO and IEC maintain terminological databases for use in standardization at the following  
167 addresses:

168 · IEC Electropedia: available at <https://www.electropedia.org/>

169 · ISO Online browsing platform: available at <https://www.iso.org/obp>

## 170 3.1 Terms and definitions

### 171 3.1.1

#### 172 OTDR reflecting device

173 optical filter that has two ports in which light in the signal wavelength ranges transmits from the first port  
174 to the second port and OTDR light in the OTDR wavelength range launched into one port is (partly)  
175 reflected back to that launch port

176 NOTE 1 to entry: It is used for out of band testing of optical fibre systems.

### 177 3.1.2

#### 178 passband wavelength range

179 the wavelength ranges of 1 260 nm to 1 360 nm, 1 480 nm to 1 500 nm and 1 550 nm to 1 560 nm

### 180 3.1.3

#### 181 reflection-band wavelength range

182 the wavelength ranges of 1 620 nm to 1 630 nm or 1 645 nm to 1 655 nm

## 183 3.2 Abbreviations

184

FBG	fibre bragg grating
ONU	optical network unit
OTDR	optical time-domain reflectometer
PDL	polarisation dependent loss
TFF	thin-film filter

## 185 4 Test

186 Unless otherwise specified, all test methods shall be in accordance with a specific IEC 61300  
187 series standard. Each test defines the number of samples to be evaluated. The samples used  
188 for each test are intended to be previously unstressed new samples but may also be selected  
189 from previously used samples if desired. The samples shall use single-mode fibres as per IEC  
190 60793-2-50 category B-652.B, B-652.D or B-657 in either coated fibres (primary and secondary)  
191 or reinforced cable format. All measurements shall be carried out at standard atmosphere  
192 condition defined in IEC 61300-1, unless otherwise stated.

193 All tests shall be carried out over the operating wavelength range: the signal wavelength ranges  
194 of 1 260 nm to 1 360 nm, 1 480 nm to 1 500 nm and 1 550 nm to 1 560 nm, and the OTDR  
195 wavelength of 1 620 nm to 1 630 nm or 1 645 nm to 1 655 nm, unless otherwise specified.

196 NOTE 1 310 nm, 1 490 nm and 1 550 nm are the nominal or centre wavelengths, stated for the ranges 1 260 nm to  
197 1 360 nm, 1 480 nm to 1 500 nm and 1 550 nm to 1 560 nm as defined in ITU-T Recommendations G.983.3 [2],  
198 G.984.2 [3] and IEEE standard 802.3-2022 [4].

## 199 5 Test report

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

## 202 6 Performance requirements

### 203 6.1 Reference components

204 The performance testing in this document does not require the use of reference components.

205 **6.2 Dimensions**

206 Dimensions shall comply with either an appropriate IEC interface standard as defined in the  
207 IEC 61754 series or with those given in appropriate manufacturers drawings, where the IEC  
208 interface standard does not exist or cannot be used.

209 **6.3 Sample size**

210 Sample sizes for the test are defined in Table A.1 of Annex A for plug-pigtail style and in Table  
211 A.2 of Annex A for plug-receptacle style.

212 **6.4 Test details and requirements**

213 Test details and requirements are shown in Table 1 for plug-pigtail style and Table 2 for plug-  
214 receptacle style.

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