



**SLOVENSKI STANDARD**  
**oSIST prEN IEC 60794-1-306:2022**  
**01-oktober-2022**

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**Kabli iz optičnih vlaken - 1-306. del: Splošna specifikacija - Osnovni preskusni postopki za optične kable - Preskusne metode za kabelske elemente - Zasuk traku, metoda G6**

Optical fibre cables - Part 1-306: Generic specification - Basic optical cable test procedures - Cable element test methods - Ribbon torsion, Method G6

**ITeH STANDARD PREVIEW**  
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Câbles à fibres optiques - Partie 1-306: Spécification générique - Procédures fondamentales d'essai des câbles optiques - Méthodes d'essai des éléments de câbles - Torsion du ruban, Méthode G6

**Ta slovenski standard je istoveten z: prEN IEC 60794-1-306:2022**

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**ICS:**

33.180.10      (Optična) vlakna in kabli      Fibres and cables

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# 86A/2214/CDV

## COMMITTEE DRAFT FOR VOTE (CDV)

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IEC SC 86A : FIBRES AND CABLES	
SECRETARIAT: France	SECRETARY: Mr Laurent Gasca
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input type="checkbox"/> SAFETY	
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TITLE:

**Optical fibre cables - Part 1-306: Generic specification - Basic optical cable test procedures - Cable element test methods - Ribbon torsion, Method G6**

PROPOSED STABILITY DATE: 2025

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

### OPTICAL FIBRE CABLES

#### Part 1-306: Generic specification - Basic optical cable test procedures– Cable element test methods– Ribbon torsion, Method G6

#### FOREWORD

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International Standard IEC 60794-1-306 has been prepared by subcommittee 86A: Fibres and cables, of IEC technical committee 86: Fibre optics.

This first edition of IEC 60794-1-306 cancels and replaces Method G6 of the first edition of IEC 60794-1-23:2019, which is withdrawn. It includes an editorial revision, based on the new structure and numbering system for optical fibre test methods.

This edition includes the following significant technical changes with respect to Method G6 of the first edition of IEC 60794-1-23:2019:

- a) change the scope, not include partially-bonded ribbon ;
- b) add some details to the procedure.

The cable element test methods contained in IEC 60794-1-23: 2019 will now be individually numbered in the IEC 60794-1-3xx series. Each test method is now considered to be an individual document rather than part of a multi-test method compendium. Full cross-reference details are given in IEC 60794-1-2.

77 The text of this International Standard is based on the following documents:

CDV	Report on voting
86A/xxxx/CDV	86A/xxxx/RVC

78

79 Full information on the voting for the approval of this International Standard can be found in the  
80 report on voting indicated in the above table.

81 This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

82 A list of all parts in the IEC 60794 series, published under the general title *Optical fibre cables*,  
83 can be found on the IEC website.

84 The committee has decided that the contents of this document will remain unchanged until the  
85 stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to  
86 the specific document. At this date, the document will be

- 87 • reconfirmed,
- 88 • withdrawn,
- 89 • replaced by a revised edition, or
- 90 • amended.

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**IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.**

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## OPTICAL FIBRE CABLES -

### Part 1-306:Generic specification -Basic optical cable test procedures - Cable element test methods– Ribbon torsion, Method G6

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#### 101 **1 Scope**

102 This part of IEC 60794 describes test procedures to verify the mechanical and functional  
103 integrity of the fibre ribbon structure. The test determines the capability of the ribbon to  
104 withstand torsion without delamination between optical fibre and ribbon bonding agent.

105 This document applies to optical fibre ribbons in optical cables for use with telecommunication  
106 equipment and devices employing similar techniques, and to optical fibre ribbons in cables  
107 having a combination of both optical fibres and electrical conductors.

108  
109 Optical fibre ribbons in this file don't include partially-bonded type. The method for partially-  
110 bonded ribbons is under consideration.

111

112 Throughout the document, the wording "optical cable" can also include optical fibre units,  
113 microduct fibre units, etc.

114 NOTE The environmental testing of optical fibre ribbon would be valuable for some applications. Useful information  
115 about suitable test methods can be found in the optical fibre standards IEC 60793-1-50, IEC 60793-1-51, IEC 60793-  
116 1-52, and IEC 60793-1-53.

#### 117 **2 Normative references**

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

122 IEC 60794-1-2, *Optical fibre cables – Part 1-2: Generic specification – Basic optical cable test*  
123 *procedures – General guidance*

#### 124 **3 Terms and definitions**

125 No terms and definitions are listed in this document.

126 ISO and IEC maintain terminological databases for use in standardization at the following  
127 addresses:

- 128 • IEC Electropedia: available at <http://www.electropedia.org/>
- 129 • ISO Online browsing platform: available at <http://www.iso.org/obp>

#### 130 **4 General requirements**

131 IEC 60794-1-2 is the reference guide to test methods of all types. It shall be considered for  
132 general requirements and definitions.

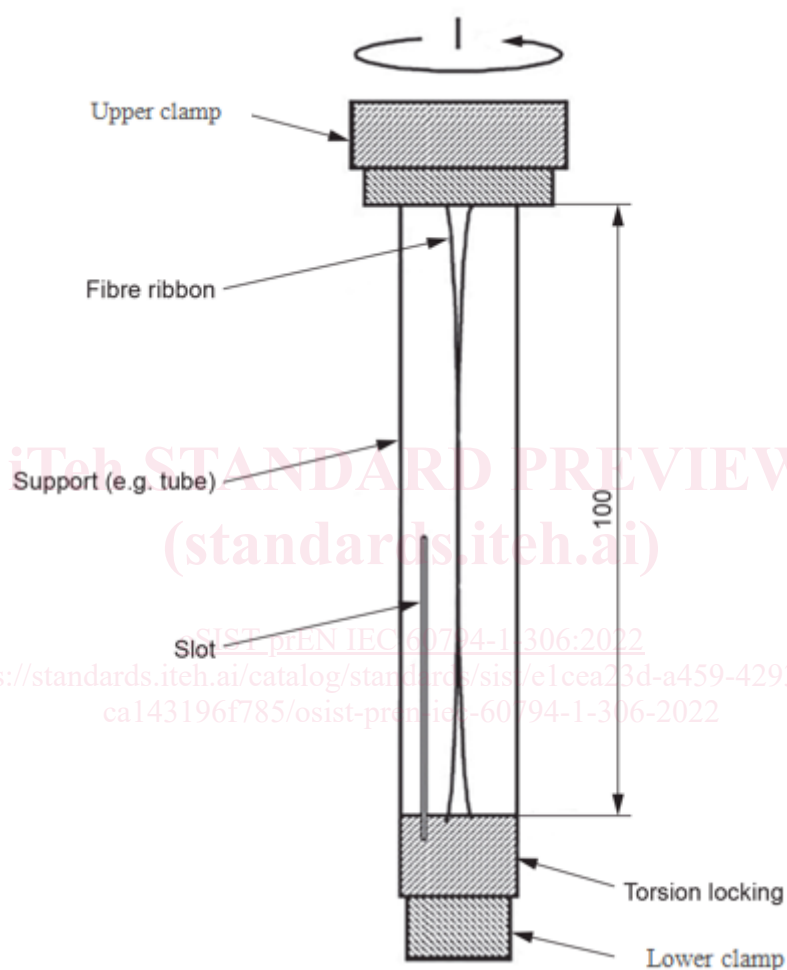
#### 133 **5 Sample**

134 Unless otherwise specified in the detail specification, five representative samples, each with  
135 sufficient length to perform applicable tests , e.g. a minimum length of 120 mm , are obtained  
136 from the ribbon to be tested.

## 137 6 Apparatus

138 The testing apparatus, an example of which is in Figure 1, consists of two vertically clamps to  
 139 hold the sample while it is twisted under a specified tension load. The upper clamp shall be  
 140 designed to hold the upper ribbon and ensure the specimen to rotate about the vertical axis.  
 141 The lower clamp shall hold the lower ribbon and be free to move along the vertical axis. Usually,  
 142 the minimum length to be tested is 100 mm, the other value(s) agreed upon between the  
 143 customer and supplier as defined in the detail specification.

144 Dimensions in millimetres



145

146

**Figure 1 – Torsion test**

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## 148 7 Procedure

149 Perform the following steps.

- 150 a) Fix the ribbon sample firmly and vertically into the upper clamp without damage. The total  
 151 mass of the lower clamp group shall not be less than 100g.
- 152 b) Rotate the upper clamp assembly, twist the sample in increments of  $180^\circ \pm 5^\circ$  smoothly and  
 153 steadily within a time of 2 s in one direction, then return to the starting position. Twist the  
 154 sample  $180^\circ \pm 5^\circ$  in the opposite direction, and again, back to the starting position. The total  
 155 process constitutes one cycle. The minimum dwell time after each twist increment is 5 s.
- 156 c) Repeat step b, the incremental twisting is continued to the value(s) agreed upon between  
 157 the customer and supplier, as defined in the detail specification, or until delamination occurs.



158 **8 Requirements**

159 The ribbon shall withstand the number of 180° turns stated in the detail specification until  
160 delamination occurs.

161 **9 Details to be specified**

162 The detail specification shall include the following:

163 a) number of samples;

164 b) sample length;

165 c) test length;

166 d) number of turns;

167 e) mass.

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**Bibliography**

170 IEC 60793-1-50: *Optical fibres – Part 1-50: Measurement methods and test procedures – Damp*  
171 *heat (steady state) tests*

172 IEC 60793-1-51: *Optical fibres – Part 1-51: Measurement methods and test procedures – Dry*  
173 *heat (steady state) tests*

174 IEC 60793-1-52: *Optical fibres – Part 1-52: Measurement methods and test procedures –*  
175 *Change of temperature tests*

176 IEC 60793-1-53: *Optical fibres – Part 1-53: Measurement methods and test procedures – Water*  
177 *immersion tests*

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