

# INTERNATIONAL STANDARD



**Fibre optic interconnecting devices and passive components – Performance standard –  
Part 111-08: Sealed closures for category G – Ground**





**THIS PUBLICATION IS COPYRIGHT PROTECTED**  
**Copyright © 2021 IEC, Geneva, Switzerland**

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

**About the IEC**

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

**About IEC publications**

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

**IEC publications search - [webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)**

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, ...). It also gives information on projects, replaced and withdrawn publications.

**IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)**

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

**IEC Customer Service Centre - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)**

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: [sales@iec.ch](mailto:sales@iec.ch).

**IEC online collection - [oc.iec.ch](http://oc.iec.ch)**

Discover our powerful search engine and read freely all the publications previews. With a subscription you will always have access to up to date content tailored to your needs.

**Electropedia - [www.electropedia.org](http://www.electropedia.org)**

The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 18 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.



IEC 61753-111-08

Edition 1.0 2021-04

# INTERNATIONAL STANDARD



---

**Fibre optic interconnecting devices and passive components – Performance standard –  
Part 111-08: Sealed closures for category G – Ground**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

---

ICS 33.180.20

ISBN 978-2-8322-9659-2

**Warning! Make sure that you obtained this publication from an authorized distributor.**

## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references .....	7
3 Terms and definitions .....	8
4 Abbreviated terms .....	11
5 General requirements .....	11
5.1 Storage, transportation and packaging.....	11
5.2 Installation and intervention .....	11
5.3 Marking and identification .....	12
5.4 Materials.....	12
5.5 Closure overpressure safety .....	13
6 Test.....	13
6.1 General.....	13
6.2 Test sample preparation .....	13
6.3 Test and measurement methods .....	13
6.4 Pass/fail criteria .....	14
6.5 Test report .....	14
7 Performance requirements.....	14
7.1 Sample size .....	14
7.2 Sealing, optical and visual examination pass/fail criteria .....	14
7.3 Sealing performance requirements.....	16
7.4 Optical performance requirements .....	19
Annex A (normative) Sample definition .....	22
A.1 Fibre type for test sample .....	22
A.2 Closure optical test sample configuration .....	23
Annex B (normative) Sample size .....	26
Annex C (normative) Intervention and reconfiguration/resplicing.....	27
C.1 Handling of the closure .....	27
C.2 Movements of splice trays to gain access to the actual fibre circuits .....	27
C.3 Addition and connection of drop cables .....	27
C.4 Rearranging splices .....	27
C.5 Rearranging optical connector sets, patchcords or pigtails (when applicable).....	28
C.6 Addition and connection of extra FMS elements.....	28
C.7 Handling of the closure .....	28
Bibliography.....	29
Figure A.1 – Track/spur joint configuration sample.....	23
Figure A.2 – Optical circuits in track/spur joint closure .....	24
Figure A.3 – Distribution joint configuration sample.....	24
Figure A.4 – Optical circuits in the distribution joint closure .....	25
Table 1 – Sealing, optical and visual examination pass/fail criteria .....	15
Table 2 – Sealing performance requirements .....	16

Table 3 – Optical performance requirements..... 19

Table A.1 – Fibre references for IEC 60793-2-50, sub-category B-652.D ..... 22

Table A.2 – Fibre references for IEC 60793-2-50, sub-category B-657.A1..... 22

Table A.3 – Fibre references for IEC 60793-2-50, sub-category B-657.A2..... 23

Table B.1 – Sample size ..... 26

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

---

**FIBRE OPTIC INTERCONNECTING  
DEVICES AND PASSIVE COMPONENTS –  
PERFORMANCE STANDARD –**
**Part 111-08: Sealed closures for category G – Ground****FOREWORD**

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 61753-111-08 has been prepared by subcommittee 86B: Fibre optic interconnecting devices and passive components, of IEC technical committee 86: Fibre optics. It is an International Standard.

This first edition cancels and replaces IEC 61753-111-8 published in 2009. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC 61753-111-8:

- a) terms and definitions updated according to IEC 61753-1:2018 and IEC 61756-1:2019;
- b) test severities updated according to IEC 61753-1:2018;
- c) sealing tests are done with 20 kPa overpressure;
- d) pass-fail criterion of pressure loss during test added to mechanical sealing tests;
- e) vibration sealing test changed to 10 Hz, 3 mm amplitude and 1 000 000 cycles;

- f) reduced loads added in cable retention test for small diameter cables and tubes;
- g) reduced loads for cable axial compression test for small diameter cables;
- h) the duration of the cycles in torsion and bending test is added;
- i) free fall test removed (is covered by the optical shock test);
- j) crush resistance test of 1 000 N for 10 min is added;
- k) assembly and disassembly test: duration reduced to 5 cycles;
- l) resistance to solvents and contaminating fluids: added immersion in diesel with duration of 1 h and 24 h drying time and added immersion in petroleum jelly for 5 days;
- m) resistance to stress cracking solvents added for 5 days;
- n) duration of the change of temperature reduced to 12 cycles;
- o) water immersion test at 1 m for 7 days added.

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

FDIS	Report on voting
86B/4426/FDIS	86B/4455/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with the ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

A list of all parts of IEC 61753 series, published under the general title *Fibre optic interconnecting devices and passive components – Performance standard*, can be found on the IEC website.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

**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.**

## INTRODUCTION

Performance standards for sealed closures define the requirements for standard optical performance under a set of specified conditions. This subpart of the IEC 61753-111 series contains a series or a set of tests and measurements with clearly stated conditions, severities and pass/fail criteria. The set of tests is intended to be a basis to prove the product's ability to satisfy the requirements of a specific application, market sector or user group.

A product that has been shown to meet all the requirements of this performance standard may be declared as complying with this performance standard. Products having the same classification from one manufacturer that satisfy this performance standard will operate within the boundaries set by the performance standard. There is no guarantee that products from different manufacturers, having the same classification and which conform to the same performance standard, will provide an equivalent level of performance when they are used together.

Conformance with IEC environmental policy according to IEC Guide 109 and concerning the need to reduce the impacts on the natural environment of fibre optic closures during all phases of their life – from acquiring materials to manufacturing, distribution, use, and end-of-life treatment (i.e. re-use, recycling – recovery and disposal) – are not part of this document, but will be covered in the generic specification.

Conformance to a performance standard demonstrates that a product has passed a design verification test. It is not a guarantee of lifetime assured performance or reliability. Reliability testing is the subject of a separate test schedule, where the tests and severities selected are such that they are truly representative of the requirements of this reliability test programme. Consistency of manufacture should be maintained using a recognised quality assurance programme whilst the reliability of product should be evaluated using the procedures recommended in IEC 62005 (all parts).