

TECHNICAL REPORT

Environmental declaration –
Part 2: Optical/copper telecom accessories products specific rules
STANDARD PREVIEW
(standards.iteh.ai)

IEC TR 62839-2:2019

<https://standards.iteh.ai/catalog/standards/sist/754d06ce-b560-4ff8-8a0b-9261f7cee7c8/iec-tr-62839-2-2019>



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2019 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
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 corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing 21 000 terms and definitions in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC publications search - 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 It also gives information on projects, replaced and withdrawn publications.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 Glossary - std.iec.ch/glossary

67 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Just Published - webstore.iec.ch/justpublished

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

IEC Customer Service Centre - 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.

IEC STANDARD PREVIEW
(standards@iec.ch)
IEC 62831-2:2019
https://standards.iteh.ai/catalog/standards/iec-62831-2-2019
9261f7cee7c8/iec-tr-62831-2-2019

TECHNICAL REPORT

Environmental declaration –
Part 2: Optical/copper telecom accessories products specific rules

STANDARD PREVIEW
(standards.iteh.ai)

IEC TR 62839-2:2019
<https://standards.iteh.ai/catalog/standards/sist/754d06ce-b560-4ff8-8a0b-9261f7cee7c8/iec-tr-62839-2-2019>

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 13.020.01; 33.120.20

ISBN 978-2-8322-6248-1

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

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	6
3 Terms and definitions	7
4 Optical/copper telecom accessories.....	8
5 System boundaries	9
5.1 General.....	9
5.2 Installation stage.....	9
5.3 Use stage losses determined by calculation	9
5.3.1 Optical connection	9
5.3.2 Balanced connectors	10
5.3.3 Coaxial connectors	11
5.3.4 Metallic waveguides.....	12
5.4 End of life stage.....	13
Annex A (informative) Applications	14
Bibliography.....	15
iTeh STANDARD PREVIEW (standards.iteh.ai)	
Table 1 – Data for optical connections.....	10
Table 2 – Balanced connectors.....	11
Table 3 – Example of losses in coaxial connector.....	12
Table 4 – Example of losses in waveguides.....	12
Table A.1 – Table of applications.....	14

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ENVIRONMENTAL DECLARATION –

Part 2: Optical/copper telecom accessories products specific rules

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.

The main task of IEC technical committees is to prepare International Standards. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

IEC TR 62839-2 which is a technical report, has been prepared by IEC technical committee 46: Cables, wires, waveguides, RF connectors, RF and microwave passive components and accessories.

The text of this Technical Report is based on the following documents:

Enquiry draft	Report on voting
46/683/DTR	46/701/RVDTR

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

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

A list of all parts in the IEC 62839 series, published under the general title *Environmental declaration*, 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 "<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.

A bilingual version of this publication may be issued at a later date.

iTeh STANDARD PREVIEW (standards.iteh.ai)

[IEC TR 62839-2:2019](#)

<https://standards.iteh.ai/catalog/standards/sist/754d06ce-b560-4ff8-8a0b-9261f7cee7c8/iec-tr-62839-2-2019>

INTRODUCTION

ISO 14025:2006 establishes the principles and specifies the procedures for developing Type III environmental declaration programmes and Type III environmental declarations. It specifically establishes the use of the ISO 14040 series of standards in the development of Type III environmental declaration programmes and Type III environmental declarations.

ISO 14025:2006 establishes principles for the use of environmental information, in addition to those given in ISO 14020:2000.

Type III environmental declarations as described in ISO 14025:2006 are primarily intended for use in business-to-business communication, but their use in business-to-consumer communication under certain conditions is not precluded. These environmental declarations, referred here after as PEP (product environmental footprint), follow specific set of rules and requirements specified in product category rules declarations that are referred here after as “PEP/PCR”.

iTeh STANDARD PREVIEW **(standards.iteh.ai)**

[IEC TR 62839-2:2019](https://standards.iteh.ai/catalog/standards/sist/754d06ce-b560-4ff8-8a0b-9261f7cee7c8/iec-tr-62839-2-2019)

<https://standards.iteh.ai/catalog/standards/sist/754d06ce-b560-4ff8-8a0b-9261f7cee7c8/iec-tr-62839-2-2019>

ENVIRONMENTAL DECLARATION –

Part 2: Optical/copper telecom accessories products specific rules

1 Scope

This document specifies the PSR (product specific rules) for optical/copper telecom accessories products. It covers the use, installation and end of life stages and provides methodological precisions to PEP/PCR writing for “optical/copper telecom accessories” products used for communication, data, control and command. PSR and general rules all together form the product category rules.

In the “accessories” category covered by IEC technical committees 46 and 86, there are four types of products:

- optical accessories (connectors and splices);
- balanced connectors;
- coaxial connectors;
- metallic waveguides.

This specification document is primarily intended for:

- environment and/or product managers;
- LCA (life cycle assessment) experts in companies in charge of PEP/PCR development;
- verifiers in charge of PEP/PCR conformity assessment in accordance with the defined rules.

2 Normative references

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

IEC 60153-2, *Hollow metallic waveguides – Part 2: Relevant specifications for ordinary rectangular waveguides*

IEC 60603-7 (all parts), *Connectors for electronic equipment*

IEC 60603-7-2, *Connectors for electronic equipment - Part 7-2: Detail specification for 8-way, unshielded, free and fixed connectors, for data transmissions with frequencies up to 100 MHz*

IEC 60603-7-4, *Connectors for electronic equipment - Part 7-4: Detail specification for 8-way, unshielded, free and fixed connectors, for data transmissions with frequencies up to 250 MHz*

IEC 60603-7-7, *Connectors for electronic equipment - Part 7-7: Detail specification for 8-way, shielded, free and fixed connectors for data transmission with frequencies up to 600 MHz*

IEC 60603-7-51, *Connectors for electronic equipment - Part 7-51: Detail specification for 8-way, shielded, free and fixed connectors, for data transmissions with frequencies up to 500 MHz*

IEC 60603-7-71, *Connectors for electronic equipment - Part 7-71: Detail specification for 8-way, shielded, free and fixed connectors, for data transmission with frequencies up to 1 000 MHz*

IEC 60603-7-81, *Connectors for electronic equipment - Part 7-81: Detail specification for 8-way, shielded, free and fixed connectors, for data transmissions with frequencies up to 2 000 MHz*

IEC 61169 (all parts), *Radio-frequency connectors*

IEC 61753-1, *Fibre optic interconnecting devices and passive components – Performance standard – Part 1: General and guidance*

IEEE 802.3-2015, *IEEE Standard for Ethernet*

ISO 14025:2006, *Environmental labels and declarations – Type III environmental declarations – Principles and procedures*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

3.1

functional unit

quantified performance of a product system for use as a reference unit

[SOURCE: ISO 14040:2006, 3.20]

3.2

product specific rules

PSR

set of specific rules, requirements and guidelines for developing Type III environmental declarations for a product category

3.3

product category rules

PCR

set of specific rules, requirements and guidelines for developing Type III environmental declarations for one or more product categories

[SOURCE: ISO 14025:2006, 3.5]

3.4

product environmental profile

PEP

declaration indicating the environmental aspects of a product established in compliance with the PEP ecopassport program according to ISO 14025, ISO 14040 and ISO 14044

3.5

reference product

product or product system modeled in the life cycle assessment and representative of a homogeneous environmental family

3.6

reference flow

measure of the outputs from processes in a given product system required to fulfil the function expressed by the functional unit

[SOURCE: ISO 14040:2006, 3.29]

3.7

life cycle assessment

LCA

compilation and evaluation of the inputs, outputs and the potential environmental impacts of a product system throughout its life cycle

[SOURCE: ISO 14040:2006, 3.2]

3.8

system boundary

set of criteria specifying which unit processes are part of a product system

[SOURCE: ISO 14040:2006, 3.32]

ITeH STANDARD PREVIEW
(standards.iteh.ai)

4 Optical/copper telecom accessories

IEC TR 62839-2:2019

Clause 4 specifies the section "Functional unit and reference flow description" of the PEP/PCR for the optical/copper telecom accessory category. It defines more precisely the functional unit for this product category.

In order to define the functional unit for optical/copper telecom accessories, the manufacturer shall use the standard formulation indicated below:

To protect and link, splice or connect

- a connection point,
- during X years (reference lifetime),
- with a Y % use rate.

Lifetime and use rate correspond to the Z application as defined in Table A.1. According to the functional unit definition, production, distribution, installation and end of life stages shall be considered for the maximum capacity of the reference flow fulfilling the functional unit.

The number N of connection points depends on the reference product used in the reference flow. The reference product belongs to a family of products listed in the Scope.

Consequently, the manufacturer shall realize the life cycle assessment for the maximal capacity of the reference product and shall present the results reduced to one connection point.

NOTE 1 A connection point is available in various ways: fusion splices, mechanical splicing, connectors. The nature of these connection points will be specified in the PEP.

NOTE 2 Storing, mixing and deriving are secondary functions of equipments and accessories for optical/copper telecom connections which are not included in the calculation of environmental impacts. Nevertheless, if necessary, these functions will be specified in the PEP.

Example of formulation of the functional unit:

« To protect and link a connection point for 30 years with a 70 % use rate for optical telecommunication application in residential building ».

5 System boundaries

5.1 General

As described in the PEP/PCR, the following life cycle stages shall be included:

- manufacturing stage,
- distribution stage,
- installation stage,
- use stage,
- end of life stage.

The following 5.2 to 5.4 complete, for installation and use stages, the respective sections of the PEP/PCR for optical/copper telecom accessories. See also Annex A for examples of lifetime and use rate.

5.2 Installation stage

Subclause 5.2 specifies section 2 “Installation stage” of the PEP/PCR for optical/copper telecom accessory category. Concerning optical/copper telecom accessories, and considering the wide range of possible installation of these products, the installation stage is excluded from the system boundaries.

This extended cut-off rule does not exclude the respect of the other requirements from the PEP/PCR, such as considering the packaging treatment, or waste from the installation stage (manufacturing, transportation and end of life of waste).

Below the environmental impact table, it shall be mentioned that the impact concerning the product installation process should be completed by the PEP user, depending on its installation scenario.

5.3 Use stage losses determined by calculation

5.3.1 Optical connection

Depending on the used connection technology, the maximum attenuation or loss (a_{cx}) specified by the manufacturers is given in Table 1.

It is considered that the power injected into the connection is 0 dBm or 1 mW and it is assumed a close connection with the laser (the most unfavorable case).

The calculation of the maximum value of the dissipated power of the connection based on the assumptions of IEC 61753-1 is made as follow:

$$P_{\text{connection}} = P_i \times \left(1 - 10^{(-a_{cx}/10)} \right) \quad (1)$$

where