PD IEC TR 62839-1:2025

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Environmental declaration

Part 1: Communication wires and cables — Product specific rules

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The UK participation in its preparation was entrusted to Technical Committee EPL/46, Cables, wires and waveguides, radio frequency connectors and accessories for communication and signalling.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Environmental declaration - Part 1: Communication wires and cables - Product specific rules

FOREWORD

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IEC TR 62839-1 has been prepared by IEC technical committee 46: Cables, wires, waveguides, RF connectors, RF and microwave passive components and accessories. It is a Technical Report.

This second edition cancels and replaces the first edition published in 2014. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) The term "accessory products" has been removed from the title and the text as accessories are covered by IEC TR 62839-2.
b) The consideration of remote powering was added for the evaluation of the use stage.
c) Guidance was added with respect to evaluate the use stage of certain coaxial cables.
d) Update of the entire document to reflect a complete life cycle assessment.

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

Draft	Report on voting
46/1051/DTR	46/1058/RVDTR

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 Technical Report is English.

This document was drafted in accordance with 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. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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1 Scope

This part of IEC 62839 describes the product specific rules (PSR) for wires and cables used for communication, data, control and command.

These PSR are applicable in case the life cycle assessment (LCA) results are intended to be used in external communication in the form of an environmental product declaration (EPD), as laid out in ISO 14021, ISO 14025, ISO 14026 and ISO 14067. These PSR are complementary to the product category rules (PCR) for (LCA) of electrical and electronic products and systems (EEPS) provided in IEC 63366.

The following categories of wires and cables are covered in this document:

– communication and data wires and cables which can comprise metallic conductors or optical fibre;
– control and command wires and cables which can comprise metallic conductors or optical fibre.

This document is applicable to communication cables in general, it is related in particular to the wire and cable products covered by generic cabling described in the ISO/IEC 11801 series which is based on component standards described in the IEC 60794 series (fibre optic cables), IEC 61156 series (metallic balanced communication cables) and the IEC 61196 series (coaxial metallic communication cables). According to this relationship, this document is related to ISO/IEC 14763-5 which describes sustainability aspect of generic cabling.

This document is primarily intended for:

– environment and/or product managers;
– LCA experts in companies or contractors and other 3rd party operators, in charge of EPD;
– verifiers in charge of conformity assessment in accordance with the defined rules.

2 Normative references

There are no normative references in this document.

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

No terms and definitions are listed in this document.

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

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

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3.2 Abbreviated terms

ADPe	abiotic resource depletion
CCS	carbon capture and storage
EC-JRC	European Union Joined Research Center
EEPS	electrical and electronic products and systems
EPD	environmental product declaration
Epf	eutrophication-freshwater
GWP	global warming potential (climate change-total)
LCA	life cycle assessment
LCI	life cycle inventory
LCIA	life cycle impact assessment
PSR	product specific rules

4 Product life cycle assessment

4.1 General

There are two options for declaring the environmental impact indicators of a system declared in an EPD, each of them meeting different needs:

– the functional unit used systematically when the comparison between systems (products, solutions...) is required;

– the declared unit, which allows the direct integration of environmental impact indicators of products at the product or system level.

4.2 Product specific rules

4.2.1 Functional unit, declared unit and reference flow description for metallic or fibre optic communication and data wires and cables

To define the functional unit for the communication and data wires and cables, the following sentence can be used:

> "To transmit one communication signal over a distance of 1 m, at a frequency of α Hz (or respectively a wavelength of β nm for a mono- or multi-mode optical fibre), during X years and a Y % use rate in accordance with the standards in force.
>
> Reference lifetime and use rate correspond to the application Z as defined in the table given in Annex A of this document."

If the protocol used and the cable (or respectively optical fibre) category are known, the following sentence can be used:

> "To transmit one communication signal on 1 m according to XX protocol, YY category, during X years and a Y % use rate in accordance with the standards in force (mention the relevant standards or refer the product technical data sheet).
>
> Reference lifetime and use rate correspond to the application Z as defined in the table given in Annex A of this document."

The determination of the numbers X of years depends on the application and is explained in 4.2.4.5.

Moreover, on account of the wide variability in the number of communication units that a cable can contain for a given application, and to ensure the comparability of the EPD, the impacts can be calculated for one communication signal.

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