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Part: 5 Sustainability

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This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	



JTC1-SC25/3206/CD

COMMITTEE DRAFT (CD)

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IEC ISO/IEC JTC 1/SC 25 : INTERCONNECTION OF INFORMATION TECHNOLOGY EQUIPMENT

SECRETARIAT:
Germany

SECRETARY:
Mr Marco Peter

OF INTEREST TO THE FOLLOWING COMMITTEES:

PROPOSED HORIZONTAL STANDARD:



Other TC/SCs are requested to indicate their interest, if any, in this CD to the secretary.

FUNCTIONS CONCERNED:

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☐ ENVIRONMENT

☐ QUALITY ASSURANCE

☐ SAFETY

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TITLE:

Information technology – Implementation and operation of customer premises cabling – Part 5 Sustainability

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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IMPLEMENTATION AND OPERATION OF CUSTOMER PREMISES CABLING
–
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- This International Standard has been approved by vote of the member bodies, and the voting results may be obtained from the address given on the second title page.
- This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

147

INTRODUCTION

148 Sustainability is most often defined as meeting the needs of the present without compromising
 149 the ability of future generations to meet theirs. It has three main pillars: economic,
 150 environmental, and social - although there appears to be no recorded origin of this concept.
 151 True sustainability is generally recognized as being where the three pillars (objectives) overlap.

152 Focussing on sustainability, it is widely recognized that generic cabling in accordance with
 153 ISO/IEC 11801 standards is intended to provide the user with an information technology
 154 infrastructure, to support both wired and wireless solutions, with extended life expectancy.

155 IT cabling systems are not only defined to transport data. More and more they are used for
 156 remote powering. Therefore, energy efficiency and power loss are becoming an important
 157 aspect of sustainability during operation.

158 As highlighted in the Introduction in many of the ISO/IEC 11801 standards *“life expectancy of
 159 generic cabling systems can vary depending on environmental conditions, supporting
 160 applications, aging of materials used in cables, and other factors, such as access to pathways
 161 (campus pathways are more difficult to access than building pathways)”* and *“a lack of design
 162 foresight, the use of inappropriate components, incorrect installation, poor administration or
 163 inadequate support can threaten quality of service and have commercial consequence for all
 164 types of users”*.

165 Those purchasing cabling infrastructures, and the interconnected information technology
 166 equipment, seek solutions which meet their business, technical and social objectives.

167 Commercial pressures can result in a reduction of environmental sustainability of the cabling
 168 infrastructure by forcing imminent requirements to take priority over strategic planning resulting
 169 in short-term decisions being taken regarding design, installation and quality assurance of the
 170 cabling infrastructure. In such cases, design choices may be made which, while reducing initial
 171 installation costs, can frequently incur medium- to long-term losses due to substantial repair
 172 and maintenance costs. There are numerous cases in which the standards have not been
 173 complied with even if they are understood, which results in a reduction of sustainability.

174 To support the long-term viability of the infrastructure, it is necessary to address the skill levels
 175 of those involved in the design and installation process by improving:

- 176 • the definition of the necessary skill sets to support the application of ISO/IEC 14763-2 and
 177 associated standards rather than relying on proprietary knowledge and specifications used
 178 by individual companies,
- 179 • The clarity of these defined skill sets to support the training and employment of skilled
 180 workers,
- 181 • the understanding of the cabling design and installation standards along with how they
 182 balance the sustainability pillars,
- 183 • the selection, use, and support of equipment needed in the cabling lifecycle, including for
 184 test and maintenance purposes.

185 Recognizing that elements of the cabling infrastructure and information technology equipment
 186 will likely be replaced during their lifetime, a reduction of both the impact of material usage and
 187 of disruption of services provided by the cabling infrastructure is pursued.

188 This document is intended for all the following stakeholders of cabling systems.

189 Supplier: cabling component and infrastructure suppliers,
 190 Owner: building owners and managers,
 191 Operator: operators of information technology cabling installations,
 192 Constructor: designers, installers of information technology cabling installations,
 193 User: users of information technology cabling installations,
 194 Educator: organisations delivering training to improve the skill sets of designers,
 195 installers and users of information technology cabling installations

Figure 1 shows a schematic relationship between the general procedure for installing the sustainable cabling system and the contents of each clause of this document.

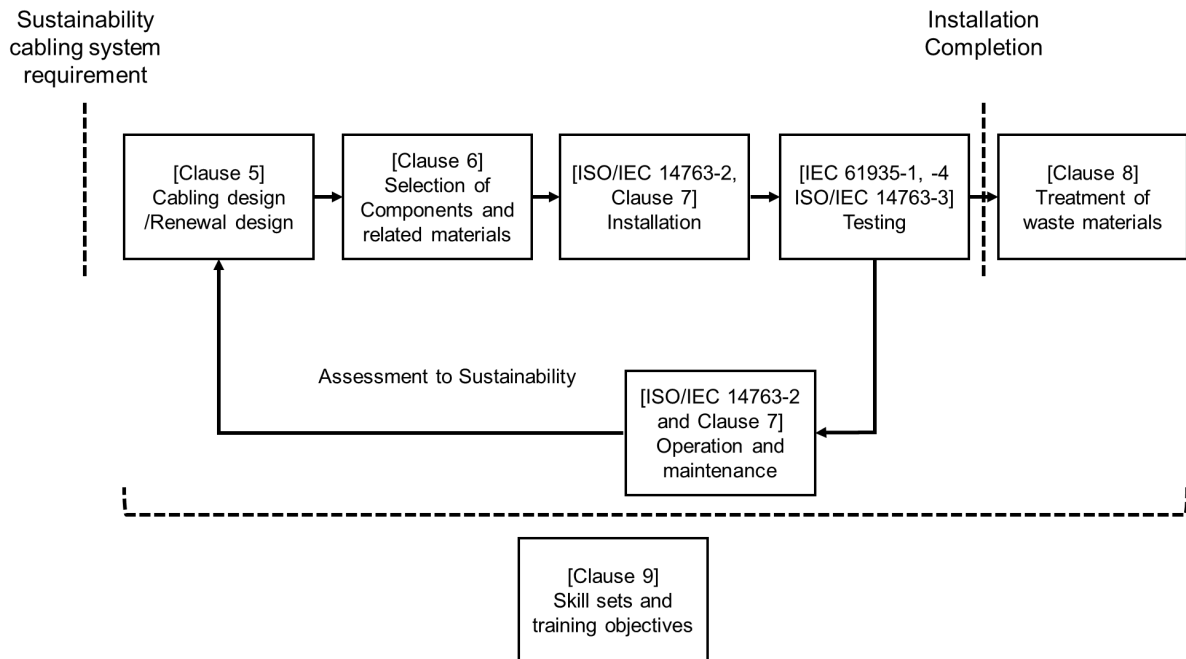


Figure 1 Schematic representation of cabling standards in system lifecycle

This International Standard is one of several documents prepared in support of international standards and technical reports for cabling design produced by ISO/IEC JTC 1/SC 25. Figure 2 shows the inter-relationship between these standards and technical reports.

Users of this document should be familiar with the applicable cabling design standard of the ISO/IEC 11801 series and ISO/IEC 14763-2.

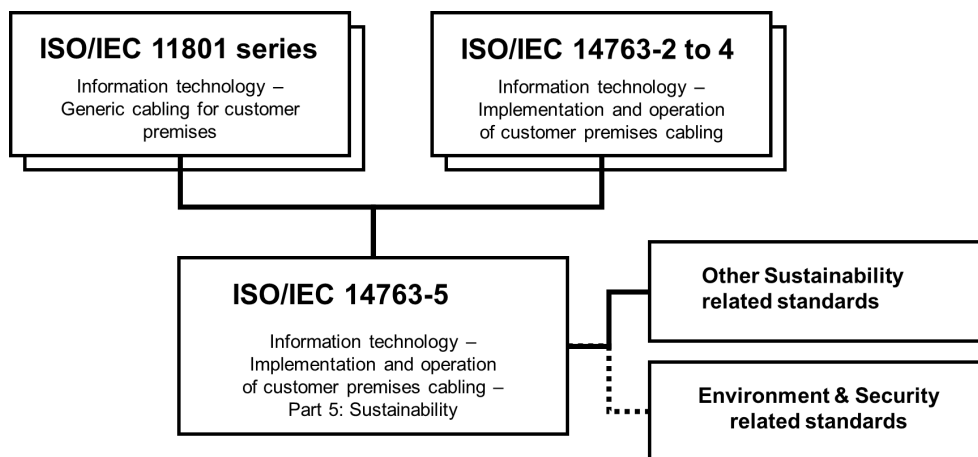


Figure 2 Schematic relationship between ISO/IEC 14763-5 and other relevant standards

NOTE Telecommunications and cabling infrastructure affects raw material consumption. The cabling infrastructure design and installation process can influence the product life and sustainability of the system. It is recommended to research local building practices for a sustainable environment and conservation of fossil fuels.

**INFORMATION TECHNOLOGY –
IMPLEMENTATION AND OPERATION OF CUSTOMER PREMISES CABLING
–
Part 5: SUSTAINABILITY**

1 Scope

This document specifies requirements and recommendations to maximize the sustainability of cabling systems including both customer premises infrastructure and the accommodation of information technology equipment by addressing the

- a) cabling design,
- b) selection, packaging and transportation of components and related materials,
- c) installation, operation and maintenance,
- d) management of waste materials,
- e) skill sets necessary for designers, installers and users.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO/IEC 14001, *Environmental management systems - A practical guide for SMES*

ISO/IEC 14763-2, *Information technology – Implementation and Operation of Customer premises cabling – Part 2: Planning and Installation*

ISO/IEC TR 14763-2-1, *Information technology – Implementation and Operation of Customer premises cabling – Part 2: Planning and Installation-Identifies within Administration System*

ISO 14025, *Environmental labels and declarations - Type III environmental declarations - Principles and procedures*

ISO 21930, *Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products and services*

IEC TR 62839-1, *Environmental declaration – Part 1: Wires, cables and accessory products – Specific rules*

IEC TR 62839-2, *Environmental Declaration - Part 2: Optical/Copper Telecom Accessories Products Specific Rules*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

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

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>

3.1.1 cabling

system of telecommunications cables, cords and connecting hardware that supports the connection of information technology equipment

256 **3.1.2**
257 **distributor**
258 functional element enabling the termination and connection of cabling subsystems to other
259 cabling subsystems or transmission equipment

260 [SOURCE: ISO/IEC 11801-1:2017, 3.1.41]

261 **3.1.3**
262 **recyclable**
263 characteristic of a product or associated component that can be diverted from the waste stream
264 through available processes and programmes and can be collected, processed, and returned
265 to use in the form of raw materials or products

266 **3.1.4**
267 **repurpose**
268 operation by which cabling and associated infrastructure is used for a purpose for which it was
269 not conceived, with or without the support of auxiliary products present on the market

270 **3.1.5**
271 **reuse**
272 operation by which cabling and associated infrastructure is used for the same purpose for which
273 it was conceived, with or without the support of auxiliary products present on the market

274 **3.1.6**
275 **stakeholder**
276 all counterparts in direct or indirect interests (impacts) for an information technology cabling
277 system. Or, all stakeholders surrounding a cabling system

278 **3.1.7**
279 **sustainable cabling system**
280 information technology cabling system which enables cost effective sustainment and provides
281 added values for all stakeholders, considering social, environmental and economic aspects,
282 through its lifecycle

283 **3.1.8**
284 **document for sustainable cabling system**
285 set of documents containing the required information specified in this standard
286 Note 1 to entry: It is provided by facility owner for design, operation, and maintenance of the sustainable
287 cabling system.

288 **3.1.9**
289 **sustainability specialist**
290 specialized expert that recognized by the education that defined in clause 9 of this document.

291 **3.2 Abbreviations**

292 For the purposes of this document the following abbreviations apply.

293	WEEE	Waste Electrical and Electronic Equipment
294	SDG	Sustainable Development Goal
295	CPD	Continuing Professional Development
296		

4 Conformance

This document prescribes requirements to maximize sustainability of the generic cabling systems, including both infrastructure in customers' premises and application of information technologies.

The cabling system that claims conformance to this document shall meet the following requirements:

- a) the cabling design and installation planning shall meet the requirements of clause 5,
- b) the selection, packaging and transportation of components and related materials shall meet the requirements of clause 6,
- c) the installation, operation and maintenance of the cabling system shall meet the requirements of clause 7,
- d) the treatment of components and related materials removed from the installation shall meet the requirements of clause 8,
- e) the skills development programs shall meet the requirements of clause 9.

In all cases, local regulations shall be met.

In addition to the installation requirements prescribed by ISO/IEC14763-2, a sustainability document shall be prepared by the owner of facility, or a party entrusted by the owner of facility, and approved by a sustainability specialist.

5 Cabling design

5.1 General

Clause 5 provides requirements, recommendations and considerations for cabling design to realize sustainability of generic cabling systems.

In order to maintain and enhance added values of a cabling system, the following consideration should be made in designing:

- a) For the distributed part on the consumer side, move, add, or update necessary equipment to adapt the latest standard and/or applications.
- b) For the general-purpose part, which is the core of a system, design and construction should enable operation/maintenance to minimize environmental footprint during the system lifecycle.
- c) Maintenance needed to minimize environmental footprint should be conducted regularly.

Awareness and consideration of sustainability during generic cabling design is fast becoming as equally important as the other considerations that have defined cabling design in the ISO/IEC 11801 series of information technology standards. This clause describes additional cabling design considerations that impact sustainability as a critical aspect of the complete cabling infrastructure eco-system. These considerations include:

- 1) consideration of sustainability at every step of the cabling design,
- 2) encouraging sustainability as a long-term strategic design innovation,
- 3) prioritizing sustainability considerations with other design considerations,
- 4) performing the necessary trade-offs between the various cabling design considerations to optimize the complete cabling ecosystem.

A key objective is to equip cabling system designers with the necessary skills and sensitivity regarding the environmental impact of cabling infrastructure design, including the environmental impact of supported information technology equipment.

In addition, in the case of additional construction to an existing cabling system, an investigation of the cabling facilities is also required before the redesign.

5.2 Cabling design selection criteria

This hierarchical star topology divides the cabling into