ISO/IEC 11801-2

Edition 1.0 2017-11

INTERNATIONAL STANDARD

Information technology – Generic cabling for customer premises – Part 2: Office premises

ISO/IEC 11801-2:2017-11(en)

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Information technology – Generic cabling for customer premises – Part 2: Office premises

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 35.200

ISBN 978-2-8322-5034-1

CONTENTS

INFORMATION TECHNOLOGY – GENERIC CABLING FOR CUSTOMER PREMISES –

Part 2: Office premises

FOREWORD

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International Standard ISO/IEC 11801-2 was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

This first edition, together with ISO/IEC 11801-1, cancels and replaces ISO/IEC 11801:2002, Amendment 1:2008 and Amendment 2:2010. This edition constitutes a technical revision.

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

a) standard re-structured to contain only those requirements that are specific for generic cabling systems installed in offices,

b) alignment of functional element designations with the generic terminology of ISO/IEC 11801-1,

c) reference to the campus and building backbone cabling system specification of ISO/IEC 11801-1,

d) reference to the channel and link specifications of ISO/IEC 11801-1.

ISO/IEC 11801-2 is to be read in conjunction with ISO/IEC 11801-1.

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

A list of all parts in the ISO/IEC 11801 series, published under the general title *Information technology – Generic cabling for customer premises*, can be found on the IEC website.

The contents of the corrigendum of April 2018 have been included in this copy.

INTRODUCTION

The importance of cabling infrastructure is similar to that of other fundamental utilities such as water and energy supply and interruptions to the services provided over that infrastructure can have a serious impact. A lack of design foresight, the use of inappropriate components, incorrect installation, poor administration or inadequate support can threaten quality of service and have commercial consequence for all types of users.

This document specifies generic cabling within and between the buildings of office premises, or office spaces within other types of building.

Additionally those premises can include

- industrial spaces for which generic cabling is specified in ISO/IEC 11801-3,
- data centre spaces for which generic cabling is specified in ISO/IEC 11801-5.

Generic cabling for distributed building services in office spaces is specified in ISO/IEC 11801-6, which addresses all of the above premises and spaces within them.

Figure 1 shows the schematic and contextual relationships between the standards relating to information technology cabling produced by ISO/IEC JTC 1/SC 25, namely the ISO/IEC 11801 series of standards for generic cabling design, standards for the installation, operation and administration of generic cabling and for testing of installed generic cabling.

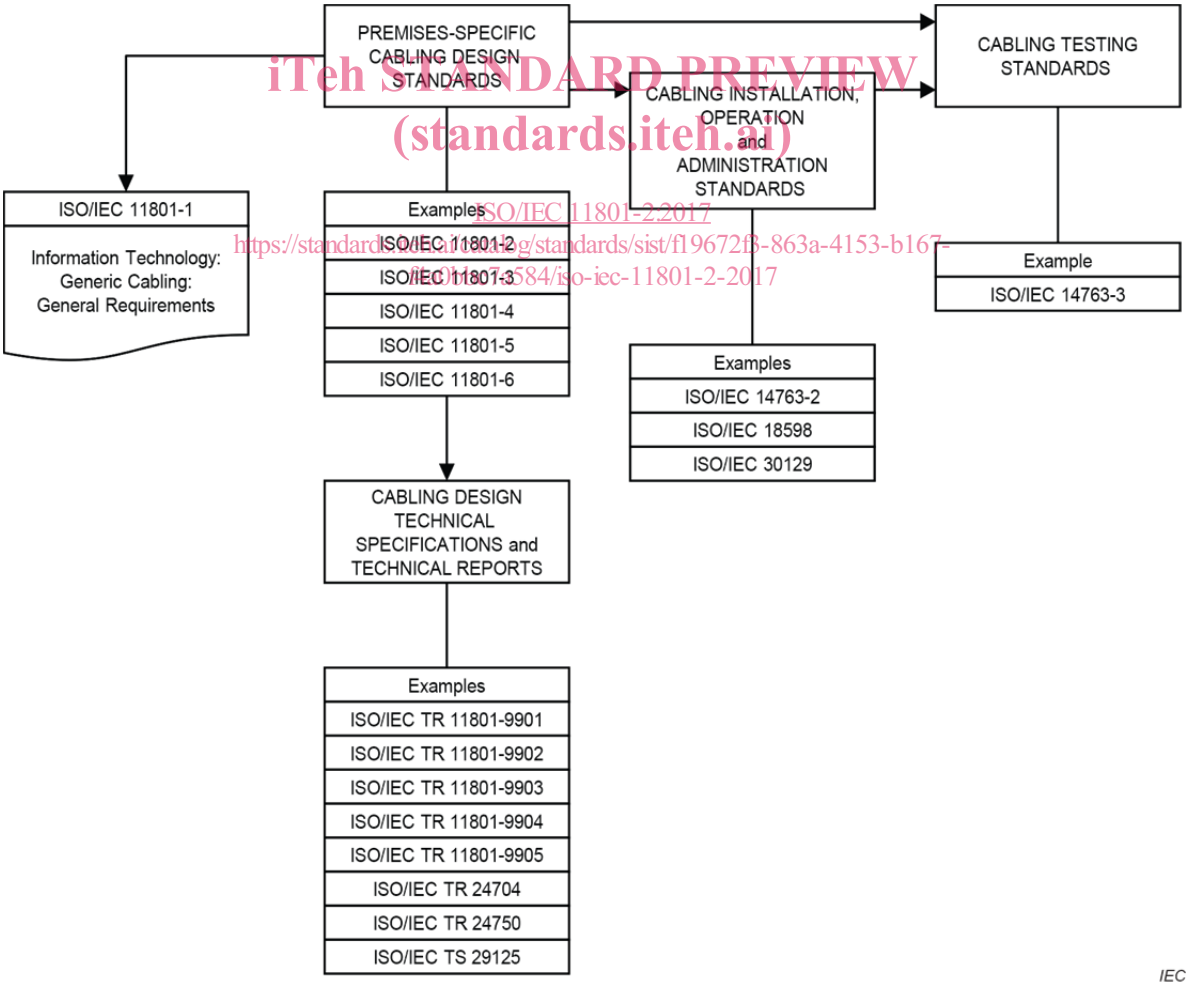

Figure 1 – Relationships between the generic cabling documents produced by ISO/IEC JTC 1/SC 25

The generic cabling specified by this document provides users with

a) an application independent system capable of supporting a wide range of applications in a range of installation and operating environments,

b) a flexible scheme such that modifications are both easy and economical,

c) a multi-vendor supply chain within an open market for cabling components.

In addition, this document provides

d) relevant industry professionals with guidance allowing the accommodation of cabling before specific requirements are known, i.e. in the initial planning either for construction or refurbishment and for further deployment as the requirements of areas are defined,

e) industry and standardization bodies with a cabling system which supports current products and provides a basis for future product development and applications standardization.

Applications addressed in this document include those developed by the technical committees of IEC (including the subcommittees of ISO/IEC JTC 1) and study groups of ITU-T.

Physical layer requirements for the applications listed in Annex E of ISO/IEC 11801-1:2017 have been analysed to determine their compatibility with the cabling performance specified in this document and, together with statistics concerning premises geography from different countries and the models described in Clause 6, have been used to develop the requirements for cabling components and to stipulate their arrangement into cabling systems.

As a result, this document

1) specifies a structure for generic cabling supporting a wide variety of applications,

2) adopts balanced cabling channel and link Classes E, E_A, F, and F_A specified in ISO/IEC 11801-1,

3) adopts optical fibre cabling channel and link requirements specified in ISO/IEC 11801-1,

4) adopts component requirements, specified in ISO/IEC 11801-1, and specifies cabling implementations that ensure performance of permanent links and of channels that meet or exceed the requirements of a specified group (e.g. Class) of applications.

Life expectancy of generic cabling systems can vary depending on environmental conditions, supporting applications, aging of materials used in cables, and other factors, such as access to pathways (campus pathways are more difficult to access than building pathways). With appropriate choice of components, generic cabling systems meeting the requirements of this document are expected to have a life expectancy of at least ten years.

This document has taken into account requirements specified in application standards listed in ISO/IEC 11801-1:2017, Annex E. It refers to International Standards for components and test methods whenever appropriate International Standards are available.

INFORMATION TECHNOLOGY – GENERIC CABLING FOR CUSTOMER PREMISES –

Part 2: Office premises

1 Scope

This part of ISO/IEC 11801 specifies generic cabling for use within office premises, which can comprise single or multiple buildings on a campus. It covers balanced cabling and optical fibre cabling.

This document is optimized for premises in which the maximum distance over which telecommunications services can be distributed is 2 000 m. The principles of this document can be applied to larger installations.

Cabling specified by this document supports a wide range of services including voice, data, and video that can also incorporate the supply of power.

This document specifies directly or via reference to ISO/IEC 11801-1

a) the structure and minimum configuration for generic cabling within office premises,
b) the interfaces at the telecommunications outlet (TO),
c) the performance requirements for cabling links and channels,
d) the implementation requirements and options,
e) the performance requirements for cabling components,
f) the conformance requirements and verification procedures.

Safety (e.g. electrical safety and protection and fire) and electromagnetic compatibility (EMC) requirements are outside the scope of this document, and are covered by other standards and by regulations. However, information given by this document can be of assistance.

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 61754-20 (all parts), *Fibre optic interconnecting devices and passive components – Fibre optic connector interfaces – Part 20: Type LC connector family*

ISO/IEC 11801-1:2017, *Information technology – Generic cabling for customer premises – Part 1: General requirements*

ISO/IEC 14763-2, *Information technology – Implementation and operation of customer premises cabling – Part 2: Planning and installation*

ISO/IEC 30129, *Information technology – Telecommunications bonding networks for buildings and other structures*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 11801-1, ISO/IEC 14763-2 and the following 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

3.1.1
equipment room
room dedicated to housing distributors and application specific equipment

3.1.2
floor distributor
distributor used to connect between the horizontal cable and other cabling subsystems or equipment

Note 1 to entry: See also telecommunications room.

3.1.3
horizontal cable
cable connecting the floor distributor to the consolidation point (CP) if a CP is present, or to the telecommunications outlet if no CP is present

3.1.4
individual work area
minimum building space that would be reserved for an occupant

3.1.5
multi-user telecommunications outlet assembly
grouping in one location of several telecommunications outlets

3.1.6
telecommunications room
enclosed space for housing telecommunications equipment, cable terminations, interconnect and cross-connect

3.1.7
work area
building space where the occupants interact with telecommunications terminal equipment

3.1.8
work area cord
cord connecting the telecommunications outlet to the terminal equipment

3.2 Abbreviated terms

For the purposes of this document, the abbreviated terms given in ISO/IEC 11801-1 and the following apply.

FD floor distributor

MUTO multi-user telecommunications outlet

PBX private branch exchange

4 Conformance

For a cabling installation to conform to this document the following applies.

a) The configuration and structure shall conform to the requirements outlined in Clause 5.

b) Channels shall meet the requirements specified in Clause 6 when subjected to environment conditions, local to the channels (see NOTE below), as defined by the applicable environmental Class(es) of Clause 6.

This shall be achieved by one of the following:

   1) a channel design and implementation ensuring that the prescribed channel performance of Clause 6 is met;
   2) attachment of appropriate components to a permanent link or CP link design meeting the prescribed performance class of Clause 7. Channel performance shall be ensured where a channel is created by adding more than one cord to either end of a link meeting the requirements of Clause 7;
   3) for E_1 environments, using the reference implementations of Clause 8 and compatible cabling components conforming to the requirements of Clauses 9, 10, and 11, that is based upon a statistical approach of performance modelling.

c) The interfaces to the cabling at the TO shall conform to the requirements of Clause 10 with respect to mating interfaces and performance when subjected to environment conditions, local to the connecting hardware (see NOTE below), as defined by the applicable environmental Class(es) of Clause 6.

d) Connecting hardware at other places in the cabling structure shall meet the performance requirements specified in Clause 10 when subjected to environment conditions, local to the connecting hardware (see NOTE below), as defined by the applicable environmental Class(es) of Clause 6.

e) The requirements of ISO/IEC 14763-2 and ISO/IEC 30219 shall be met.

This document does not specify which tests and sampling levels should be adopted. Test methods to assess conformance with the channel and link requirements of Clause 6 and Clause 7, respectively, are specified in ISO/IEC 11801-1. The test parameters to be measured, the sampling levels and the treatment of measured results to be applied for particular installations shall be defined in the installation specification and quality plan for that installation, prepared in accordance with ISO/IEC 14763-2.

In the absence of the channel, the conformance of the link shall be used to verify conformance to this document.

Specifications marked "ffs" are preliminary specifications, and are not required for conformance to this document.

NOTE The applicable environmental classification of ISO/IEC 11801-1:2017, 6.2, local to the cabling or cabling component(s), is that of the environment immediately adjacent to the cabling or cabling component(s).

5 Structure of the generic cabling system

5.1 General

Clause 5 identifies the functional elements of generic cabling, describes how they are connected together to form subsystems and identifies the interfaces at which application-specific components are connected to the generic cabling.

Applications are supported by connecting equipment to the telecommunications outlets and distributors.

5.2 Functional elements

In addition to the functional elements of ISO/IEC 11801-1, cabling in accordance with this document specifies the following functional elements:

a) floor distributor (FD) – equivalent to distributor 1 in ISO/IEC 11801-1;

b) horizontal cable – equivalent to fixed cable (cable Z) within cabling subsystem 1 in ISO/IEC 11801-1;

c) consolidation point (CP) – equivalent to consolidation point in ISO/IEC 11801-1;

d) consolidation point cable (CP cable) – equivalent to cable Y in ISO/IEC 11801-1;

e) telecommunications outlet (TO) or multi-user telecommunications outlet (MUTO) – equivalent to TE outlet in ISO/IEC 11801-1.

Groups of these functional elements are connected together to form cabling subsystems to provide the required connectivity to the terminal equipment.