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STN	**Informačná technika Generické káblové systémy Časť 5: Priestory výpočtových stredísk**	**STN EN 50173-5 36 7253**

Information technology - Generic cabling systems - Part 5: Data centre spaces

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 09/18

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50173-5

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ICS 33.040.50

Supersedes EN 50173-5:2007

English Version

Information technology - Generic cabling systems - Part 5: Data centre spaces

Technologies de l'information - Systèmes de câblage générique - Partie 5: Espaces de centres de traitement de données

Informationstechnik - Anwendungsneutrale Kommunikationskabelanlagen - Teil 5: Rechenzentrumsbereiche

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

This document (EN 50173-5:2018) has been prepared by the Technical Committee CENELEC TC 215 "Electrotechnical aspects of telecommunication equipment".

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2019-03-19
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2021-03-19

This document supersedes EN 50173-5:2007 + A1:2010 + AC:2011 + A2:2012.

The European Standards EN 50173:1995 and EN 50173-1:2002 have been developed to enable the application-independent cabling to support ICT applications in office premises. Their basic principles, however, are applicable to other types of applications and in other types of premises.

TC 215 has decided to establish relevant European Standards which address the specific requirements of these premises. In order to point out the commonalities of these cabling design standards, these EN are published as individual parts of the series EN 50173, thus also acknowledging that standards users recognize the designation “EN 50173” as a synonym for generic cabling design.

At the time of publication of this European Standard, series EN 50173 comprises the following standards:

EN 50173-1	Information technology — Generic cabling systems — Part 1: General requirements
EN 50173-2	Information technology — Generic cabling systems — Part 2: Office spaces
EN 50173-3	Information technology — Generic cabling systems — Part 3: Industrial spaces
EN 50173-4	Information technology — Generic cabling systems — Part 4: Homes
EN 50173-5	Information technology — Generic cabling systems — Part 5: Data centre spaces
EN 50173-6	Information technology — Generic cabling systems — Part 6: Distributed building services

This edition of EN 50173-5:

a) introduces new components 8.1 and 8.2 for balanced cabling to support new channel Classes I and II as well as optical fibre cabling (OM5) as defined in EN 50173-1:2018;

b) clarifies that the cabling defined in this standard applies to computer rooms in data centres;

c) aligns the document structure across the EN 50173 series and updates the document both technically and editorially.

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 consequences for all types of users.

This standard specifies generic cabling within computer room spaces in data centre premises, or data centre spaces within other types of building.

Additionally those premises can include:

— office spaces for which generic cabling is specified in EN 50173-2;

— industrial spaces for which generic cabling is specified in EN 50173-3.

Generic cabling for distributed building services in data centre spaces is specified in EN 50173-6 which addresses all of the above premises and spaces within them.

Figure 1 and Table 1 show the schematic and contextual relationships between the standards produced by TC 215 for information technology cabling, namely:

1) this and other parts of the EN 50173 series;

2) installation (EN 50174 series);

3) bonding (EN 50310).

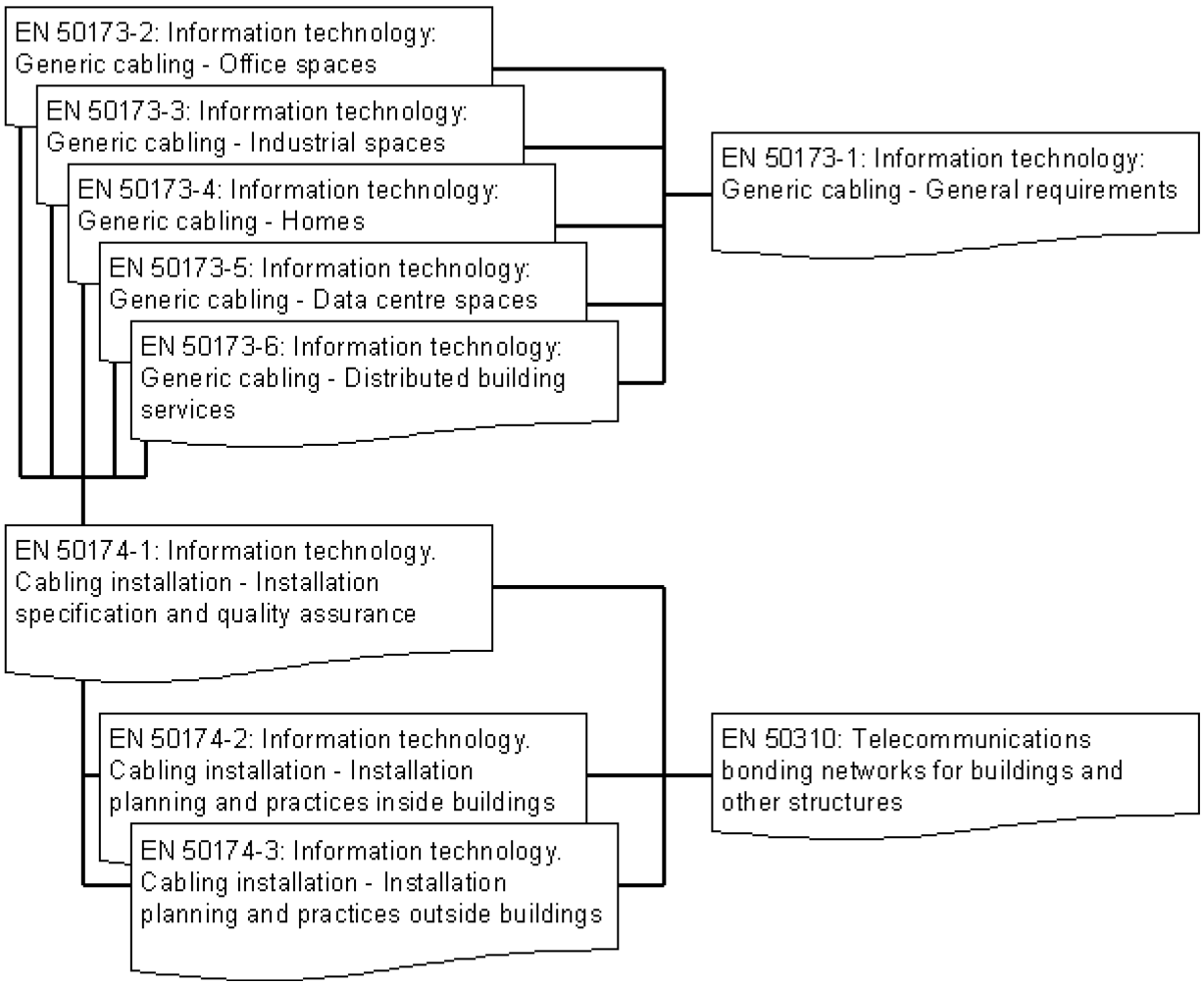

Figure 1 — Schematic relationship between the EN 50173 series and other relevant standards

Table 1 — Contextual relationship between EN 50173 series and other standards relevant for information technology cabling systems

Building design phase	Generic cabling design phase	Specification phase	Installation phase	Operation phase
EN 50310	**EN 50173-2** **EN 50173-3** **EN 50173-4** **EN 50173-5** **EN 50173-6** (these ENs reference general requirements of EN 50173-1)	**EN 50174-1** **Planning phase** **EN 50174-2** **EN 50174-3** **EN 50310**	**EN 50174-2** **EN 50174-3** **EN 50310**	**EN 50174-1**

In addition, a number of Technical Reports have been developed to support or extend the application of these standards, including:

— CLC/TR 50173-99-1, *Cabling guidelines in support of 10 GBASE-T*;

— CLC/TR 50173-99-2, *Information technology — Implementation of BCT applications using cabling in accordance with EN 50173-4;*

— CLC/TR 50173-99-3, *Information technology — Generic cabling systems — Part 99-3: Home cabling infrastructures up to 50 m in length to support simultaneous and non simultaneous provision of applications*.

In addition, a number of cabling design standards have been developed using components of EN 50173-1 (e.g. EN 50098 series and EN 50700).

The generic cabling specified by this standard provides users with:

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

— a flexible scheme such that modifications are both easy and economical;

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

In addition this standard provides:

a) 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;

b) 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 standard include those developed by the Technical Committees of IEC (including the subcommittees of ISO/IEC JTC 1) and study groups of ITU-T within the densely connected environment of data centre spaces.

Physical layer requirements for the applications listed in EN 50173-1:2018, Annex F, have been analysed to determine their compatibility with the cabling performance specified in this standard and, together with statistics concerning premises geography from different countries and the models described in Clause 4, have been used to develop the requirements for cabling components and to stipulate their arrangement into cabling systems.

As a result, this standard:

a) specifies a structure for generic cabling supporting a wide variety of applications including, but not restricted to, those in EN 50173-1:2018, Annex F;

b) adopts balanced cabling channel and link Classes E_A, F, F_A, I and II specified in EN 50173-1;

c) adopts optical fibre cabling channel and link requirements specified in EN 50173-1;

d) adopts component requirements, specified in EN 50173-1, and specifies cabling implementations that ensures performance of links and of channels meeting the requirements of a specified group (e.g. Class) of applications.

Life expectancy of generic cabling systems can vary depending on environmental conditions, supported 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 standard are expected to have a life expectancy of at least ten years.

This document should be read in conjunction with EN 50600-2-4 which describes other aspects of telecommunications cabling in the computer room and other spaces of data centres.

1 Scope and conformance

1.1 Scope

This standard specifies generic cabling within computer room spaces in data centre premises, or data centre spaces within other types of building.

It covers balanced cabling and optical fibre cabling.

This standard specifies directly or via reference to EN 50173-1 the:

— structure and minimum configuration for generic cabling within data centre spaces;

— interfaces at the external network interface (ENI) and equipment outlet (EO);

— performance requirements for cabling links and channels;

— implementation requirements and options;

— performance requirements for cabling components;

— conformance requirements and verification procedures.

This standard has taken into account requirements specified in application standards listed in EN 50173-1.

Safety and electromagnetic compatibility (EMC) requirements are outside the scope of this standard and are covered by other standards and regulations. However, information given in this standard can be of assistance in meeting these standards and regulations.

1.2 Conformance

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

a) The configuration and structure shall conform to the requirements of Clause 4.

b) Channels shall meet the requirements of Clause 5.

This shall be achieved by one of the following:

1) a channel design and implementation ensuring that the prescribed channel performance of Clause 5 is met;

2) attachment of appropriate components to a permanent link or LDP link design meeting the prescribed performance class of Annex A. 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 Annex A;

3) for E_1 environments, using the reference implementations of Clause 6 and compatible cabling components conforming to the requirements of Clauses 7, 8 and 9 based upon a statistical approach of performance modelling.

c) The interfaces to the cabling at the EO and ENI shall conform to the requirements of Clause 8 with respect to mating interfaces and performance.

d) Connecting hardware at other places in the cabling structure shall meet the performance requirements specified in Clause 8 independent of the interface used.

e) The requirements of EN 50174 series standards and EN 50310 shall be met.

f) Local regulations, including those concerning safety and EMC, shall be met.

This standard does not specify which tests and sampling levels should be adopted. Test methods to assess conformance with the channel and link requirements of Clause 5 and Annex A respectively are specified in EN 50173-1. The test parameters to be measured, the sampling levels and the treatment of measured results to be applied for a particular installation shall be defined in the installation specification and quality plans for that installation prepared in accordance with EN 50174-1.

In the absence of the channel, the conformance of the link shall be used to verify conformance with the standard.

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.

EN 50173-1:2018, *Information technology — Generic cabling systems — Part 1: General requirements*

EN 50174-1, *Information technology — Cabling installation — Part 1: Installation specification and quality assurance*

EN 50174-2, *Information technology — Cabling installation — Part 2: Installation planning and practices inside buildings*

EN 50174-3, *Information technology — Cabling installation — Part 3: Installation planning and practices outside buildings*

EN 61076-3-106:2006, *Connectors for electronic equipment — Product requirements — Part 3-106: Rectangular connectors — Detail specification for protective housings for use with 8-way shielded and unshielded connectors for industrial environments incorporating the IEC 60603-7 series interface (IEC 61076-3-106:2006)*

EN 61076-3-110, *Connectors for electronic equipment — Product requirements — Part 3-110: Detail specification for shielded, free and fixed connectors for data transmission with frequencies up to 1 000 MHz (IEC 61076-3-110)*

EN 61754-7-1, *Fibre optic interconnecting devices and passive components — Fibre optic connector interfaces — Part 7-1: Type MPO connector family — One fibre row (IEC 61754-7-1)*

EN IEC 61754-7-2, *Fibre optic interconnecting devices and passive components — Fibre optic connector interfaces — Part 7-2: Type MPO connector family — Two fibre rows (IEC 61754-7-2)*

EN 61754-20:2012, *Fibre optic interconnecting devices and passive components — Fibre optic connector interfaces — Part 20: Type LC connector family (IEC 61754 20:2012)*