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Informacijska tehnologija - Univerzalni sistemi pokabljenja - 1. del: Splošne zahteve

Information technology - Generic cabling systems - Part 1: General requirements

Informationstechnik - Anwendungsneutrale Kommunikationskabelanlagen -- Teil 1: Allgemeine Anforderungen

Technologies de l'information - Systemes de câblage générique - Partie 1: Exigences générales

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Ta slovenski standard je istoveten z: EN 50173-1:2007

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EUROPEAN STANDARD

EN 50173-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2007

ICS 33.040.50

Partially supersedes EN 50173-1:2002

English version

**Information technology -
Generic cabling systems -
Part 1: General requirements**

Technologies de l'information -
Systèmes de câblage générique -
Partie 1: Exigences générales

Informationstechnik -
Anwendungsneutrale
Kommunikationskabelanlagen -
Teil 1: Allgemeine Anforderungen

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This European Standard was approved by CENELEC on 2007-04-11. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 215, *Electrotechnical aspects of telecommunication equipment*.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50173-1 on 2007-04-11.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2008-05-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2010-05-01

The previous editions of 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 premises |
| EN 50173-3 | Information technology – Generic cabling systems – Part 3: Industrial premises |
| EN 50173-4 | Information technology – Generic cabling systems – Part 4: Homes |
| EN 50173-5 | Information technology – Generic cabling systems – Part 5: Data centres |

This European Standard, EN 50173-1, together with EN 50173-2:2007 supersedes EN 50173-1:2002. This standard contains those specifications of EN 50173-1:2002, which are common to generic cabling systems irrespective of the type of premises. This European Standard also

- introduces the concept of environmental classification (Subclause 5.1);
- specifies additional channels for balanced and optical fibre cabling media;
- specifies additional channels for coaxial cabling;
- specifies the minimum component requirements in support of these additional cabling channels;
- extends and amends the list of applications supported by generic cabling systems.

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Introduction

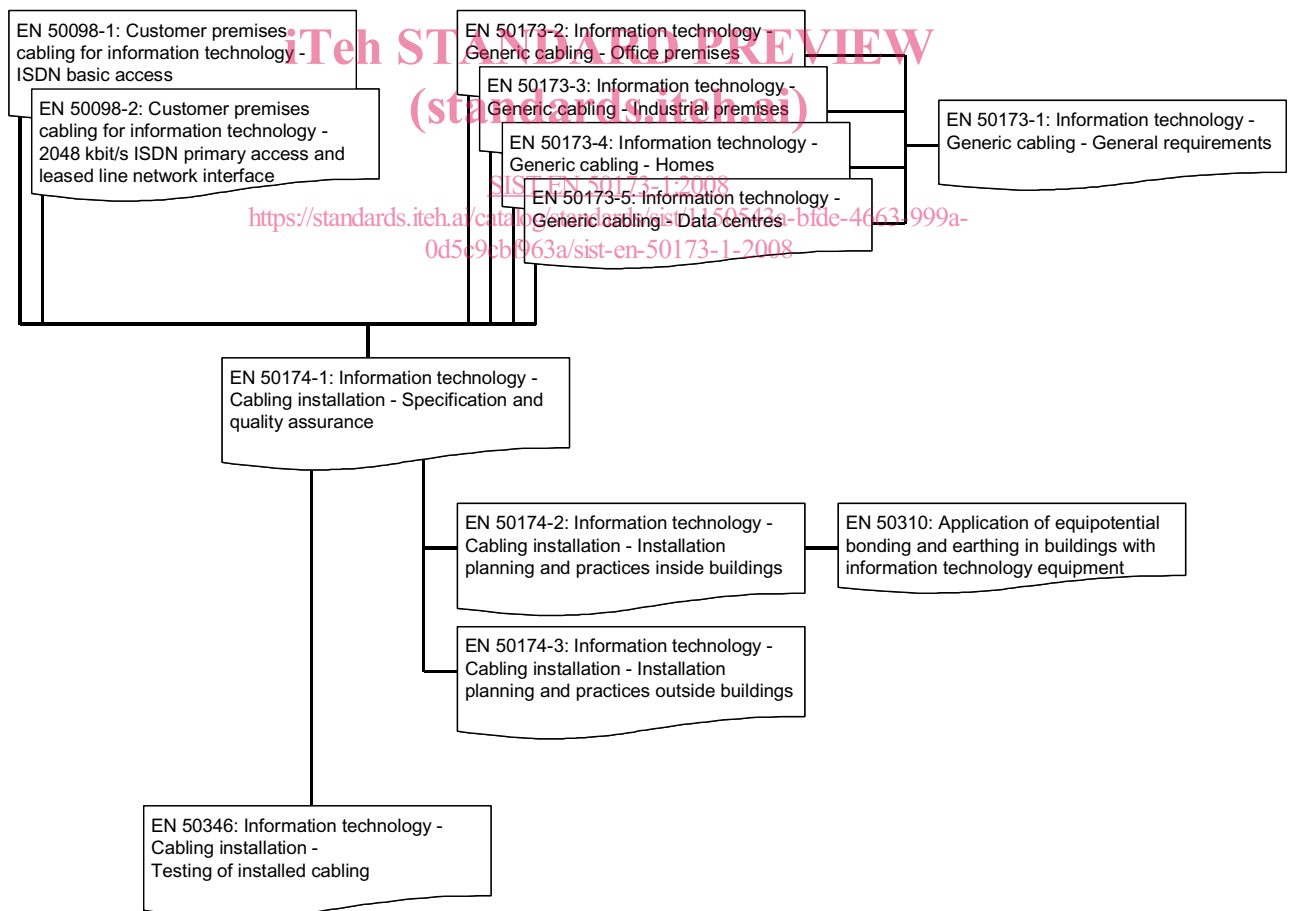
This European Standard contains general requirements in support of the other standards in the EN 50173 series.

It should be noted that generic cabling is a passive system and cannot be tested for EMC compliance individually. Application-specific equipment, designed for one or more cabling media, is required to meet relevant EMC standards on those media. Care should be taken that the installation of any of those media in a cabling system does not degrade the characteristics of the system. The installation methods of EN 50174 series should be used to minimise the effect of electromagnetic disturbances. For EMC requirements of BCT cabling see EN 50083-8.

Series EN 50174 and EN 50310 specify requirements for earthing and equipotential bonding.

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) application dependent cabling design (e.g. EN 50098 series);
- 3) installation (EN 50174 series);
- 4) testing of installed cabling (EN 50346);
- 5) equipotential bonding requirements (EN 50310).



NOTE For the purposes of the standards in the EN 50173 and EN 50174 series the term "information technology" includes ICT, BCT and CCCB applications

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 | |
|---|--|---|---|---|--|
| <p>EN 50310</p> <p>5.2: Common bonding network (CBN) within a building</p> <p>6.3: AC distribution system and bonding of the protective conductor (TN-S)</p> | <p>EN 50173 series except EN 50173-4</p> <p>4: Structure</p> <p>5: Channel performance</p> <p>7: Cable requirements</p> <p>8: Connecting hardware requirements</p> <p>9: Requirements for cords and jumpers</p> <p>A: Link performance limits</p> | <p>EN 50174-1</p> <p>4: Requirements for installers</p> <p>5: Requirements for premises owners</p> | <p>EN 50174-2</p> <p>4: Requirements for installers of information technology cabling</p> <p>6: Segregation of metallic information technology and mains power cabling</p> <p>7: Additional considerations</p> <p>and EN 50174-3 and (for equipotential bonding) EN 50310</p> <p>5.2: Common bonding network (CBN) within a building</p> <p>6.3: AC distribution system and bonding of the protective conductor (TN-S)</p> <p>and EN 50346</p> <p>4: General requirements</p> <p>5: Test parameters for balanced cabling</p> <p>6: Test parameters for optical fibre cabling</p> | <p>EN 50174-1</p> <p>5: Requirements for premises owners</p> | |
| | <p>and EN 50173-4</p> <p>4 and 5: Structure</p> <p>6: Channel performance</p> <p>8: Cable requirements</p> <p>9: Connecting hardware requirements</p> <p>10: Requirements for cords and jumpers</p> <p>A: Link performance limits</p> | <p>Planning phase</p> | | | <p>EN 50174-2</p> |
| | | <p>4 and 5: Structure</p> <p>6: Channel performance</p> <p>8: Cable requirements</p> <p>9: Connecting hardware requirements</p> <p>10: Requirements for cords and jumpers</p> <p>A: Link performance limits</p> | | | <p>EN 50174-2</p> <p>5: Requirements for planning installations of information technology cabling</p> <p>6: Segregation of metallic information technology and mains power cabling</p> <p>7: Additional considerations</p> <p>and EN 50174-3 and (for equipotential bonding) EN 50310</p> <p>5.2: Common bonding network (CBN) within a building</p> <p>6.3: AC distribution system and bonding of the protective conductor (TN-S)</p> |

1 Scope and conformance

1.1 Scope

This European Standard specifies:

- a) the structure and configuration of the backbone cabling subsystems of generic cabling systems within the types of premises defined by the other standards in the EN 50173 series;
- b) channel performance requirements in support of the standards in the EN 50173 series;
- c) link performance requirements in support of the standards in the EN 50173 series;
- d) backbone cabling reference implementations in support of the standards in the EN 50173 series;
- e) component performance requirements in support of the standards in the EN 50173 series.

Safety (electrical safety and protection, optical power, fire, etc.) and electromagnetic compatibility (EMC) requirements are outside the scope of this European Standard and are covered by other standards and regulations. However, information given in this European Standard may be of assistance in meeting these standards and regulations.

1.2 Conformance

This European Standard does not contain specific conformance requirements. The other standards in the EN 50173 series incorporate the requirements of this standard as part of their individual conformance requirements.

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.

EN 50083 (series), *Cable networks for television signals, sound signals and interactive services*

NOTE EN 50083 series is gradually replaced by EN 60728 series

EN 50117-1, *Coaxial cables – Part 1: Generic specification*

EN 50174-1, *Information technology – Cabling installation – Part 1: 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 50288-1, *Multi-element metallic cables used in analogue and digital communication and control – Part 1: Generic specification*

EN 50288-2-1, *Multi-element metallic cables used in analogue and digital communication and control – Part 2-1: Sectional specification for screened cables characterized up to 100 MHz – Horizontal and building backbone cables*

EN 50288-2-2, *Multi-element metallic cables used in analogue and digital communication and control – Part 2-2: Sectional specification for screened cables characterized up to 100 MHz – Work area and patch cord cables*

EN 50288-3-1, *Multi-element metallic cables used in analogue and digital communication and control – Part 3-1: Sectional specification for unshielded cables characterized up to 100 MHz - Horizontal and building backbone cables*

- EN 50288-3-2, *Multi-element metallic cables used in analogue and digital communication and control – Part 3-2: Sectional specification for unscreened cables characterized up to 100 MHz – Work area and patch cord cables*
- EN 50288-4-1, *Multi-element metallic cables used in analogue and digital communication and control – Part 4-1: Sectional specification for screened cables characterised up to 600 MHz – Horizontal and building backbone cables*
- EN 50288-4-2, *Multi-element metallic cables used in analogue and digital communication and control – Part 4-2: Sectional specification for screened cables characterised up to 600 MHz – Work area and patch cord cables*
- EN 50288-5-1, *Multi-element metallic cables used in analogue and digital communication and control – Part 5-1: Sectional specification for screened cables characterized up to 250 MHz – Horizontal and building backbone cables*
- EN 50288-5-2, *Multi-element metallic cables used in analogue and digital communication and control – Part 5-2: Sectional specification for screened cables characterized up to 250 MHz – Work area and patch cord cables*
- EN 50288-6-1, *Multi-element metallic cables used in analogue and digital communication and control – Part 6-1: Sectional specification for unscreened cables characterized up to 250 MHz – Horizontal and building backbone cables*
- EN 50288-6-2, *Multi-element metallic cables used in analogue and digital communication and control – Part 6-2: Sectional specification for unscreened cables characterized up to 250 MHz – Work area and patch cord cables*
- EN 50289-1-2, *Communication cables – Specifications for test methods – Part 1-2: Electrical test methods – D.C. resistance*
- EN 50289-1-5:2001, *Communication cables – Specifications for test methods – Part 1-5: Electrical test methods – Capacitance*
- EN 50289-1-6, *Communication cables – Specifications for test methods – Part 1-6: Electrical test methods – Electromagnetic performance*
- EN 50289-1-8, *Communication cables – Specifications for test methods – Part 1-8: Electrical test methods – Attenuation*
- EN 50289-1-9, *Communication cables – Specifications for test methods – Part 1-9: Electrical test methods – Attenuation unbalance (Longitudinal conversion loss, longitudinal conversion transfer loss)*
- EN 50289-1-11, *Communication cables – Specifications for test methods – Part 1-11: Electrical test methods – Characteristic impedance, input impedance, return loss*
- EN 50289-1-14, *Communication cables – Specifications for test methods – Part 1-14: Electrical test methods – Coupling attenuation or screening attenuation of connecting hardware*
- EN 50289-3-9:2001, *Communication cables – Specifications for test methods – Part 3-9: Mechanical test methods – Bending tests*
- EN 50346, *Information technology – Cabling installation – Testing of installed cabling*
- EN 60068-2-14, *Environmental testing - Part 2: Tests - Test N: Change of temperature (IEC 60068-2-14:1984 + A1:1986)*
- EN 60068-2-38, *Environmental testing - Part 2: Tests - Test ZIAD: Composite temperature/humidity cyclic test (IEC 60068-2-38:1974)*
- EN 60352-3, *Solderless connections – Part 3: Solderless accessible insulation displacement connections - General requirements, test methods and practical guidance (IEC 60352-3:1993)*
- EN 60352-4, *Solderless connections - Part 4: Solderless non-accessible insulation displacement connections - General requirements, test methods and practical guidance (IEC 60352-4:1994)*
- EN 60352-6, *Solderless connections - Part 6: Solderless insulation piercing connections - General requirements, test methods and practical guidance (IEC 60352-6:1997)*
- EN 60512-2-1:2002, *Connectors for electronic equipment - Tests and measurements – Part 2-1: Electrical continuity and contact resistance tests – Test 2a: Contact resistance – Millivolt level method (IEC 60512-2-1:2002)*

- EN 60512-3-1:2002, *Connectors for electronic equipment – Tests and measurements – Part 3-1: Insulation tests – Test 3a: Insulation resistance (IEC 60512-3-1:2002)*
- EN 60512-4-1:2003, *Connectors for electronic equipment – Tests and measurements – Part 4-1: Voltage stress tests – Test 4a: Voltage proof (IEC 60512-4-1:2003)*
- EN 60512-4-2, *Connectors for electronic equipment – Tests and measurements – Part 4-2: Voltage stress tests - Test 4b: Partial discharge (IEC 60512-4-2:2002)*
- EN 60512-5-2:2002, *Connectors for electronic equipment – Tests and measurements – Part 5-2: Current-carrying capacity tests – Test 5b: Current-temperature derating (IEC 60512-5-2:2002)*
- EN 60512-6-2, *Connectors for electronic equipment – Tests and measurements – Part 6-2: Dynamic stress tests - Test 6b: Bump (IEC 60512-6-2:2002)*
- EN 60512-6-3, *Connectors for electronic equipment – Tests and measurements – Part 6-3: Dynamic stress tests - Test 6c: Shock (IEC 60512-6-3:2002)*
- EN 60512-6-4, *Connectors for electronic equipment – Tests and measurements – Part 6-4: Dynamic stress tests - Test 6d: Vibration (sinusoidal) (IEC 60512-6-4:2002)*
- EN 60512-11-4, *Connectors for electronic equipment – Tests and measurements – Part 11-4: Climatic tests - Test 11d: Rapid change of temperature (IEC 60512-11-4:2002)*
- EN 60512-11-7, *Connectors for electronic equipment – Tests and measurements – Part 11-7: Climatic tests - Test 11g: Flowing mixed gas corrosion test (IEC 60512-11-7:2003)*
- EN 60512-11-9, *Connectors for electronic equipment – Tests and measurements – Part 11-9: Climatic tests - Test 11i: Dry heat (IEC 60512-11-9:2002)*
- EN 60512-11-10, *Connectors for electronic equipment – Tests and measurements – Part 11-10: Climatic tests; Test 11j: Cold (IEC 60512-11-10:2002)*
- EN 60512-11-12, *Connectors for electronic equipment – Tests and measurements – Part 11-12: Climatic tests - Test 11m: Damp heat, cyclic (IEC 60512-11-12:2002)*
- EN 60512-19-3, *Connectors for electronic equipment – Tests and measurements – Part 19-3: Chemical resistance tests – Section 3: Test 19c – Fluid resistance (IEC 60512-19-3:1997)*
- EN 60512-23-3, *Connectors for electronic equipment – Tests and measurements – Part 23-3: Test 23c: Shielding effectiveness of connectors and accessories (IEC 60512-23-3:2000)*
- EN 60512-25-1, *Connectors for electronic equipment – Tests and measurements - Part 25-1: Test 25a – Crosstalk ratio (IEC 60512-25-1:2001)*
- EN 60512-25-2, *Connectors for electronic equipment – Tests and measurements - Part 25-2: Test 25b – Attenuation/insertion loss (IEC 60512-25-2:2002)*
- EN 60512-25-4, *Connectors for electronic equipment – Tests and measurements - Part 25-4: Test 25d – Propagation delay (IEC 60512-25-4:2001)*
- EN 60512-25-5, *Connectors for electronic equipment – Tests and measurements – Part 25-5: Test 25e – Return loss (IEC 60512-25-5:2004)*
- EN 60529, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)*
- EN 60603-7:1997, *Connectors for frequencies below 3 MHz for use with printed boards – Part 7: Detail specification for connectors, 8-way, including fixed and free connectors with common mating features, with assessed quality (IEC 60603-7:1996)*
- EN 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 (Category 5, unshielded) (IEC 60603-7-2:2007).*
- EN 60603-7-3 ¹⁾, *Connectors for electronic equipment – Part 7-3: Detail specification for 8 way, shielded, free and fixed connectors, for data transmissions with frequencies up to 100 MHz (Category 5, shielded) (IEC 60603-7-3:200X)*

1) Approved for Parallel Vote, see also IEC/PAS 60603-7-3:2004.