

Application of equipotential bonding and earthing in buildings with information technology equipment

The European Standard EN 50310:2006 has the status of a
British Standard

ICS 33.100; 35.020; 91.140.50

National foreword

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The UK participation in its preparation was entrusted to Technical Committee TCT/7, Telecommunications — Installation requirements, which has the responsibility to:

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Summary of pages

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English version

Application of equipotential bonding and earthing in buildings with information technology equipment

Application de liaison équipotentielle
et de la mise à la terre dans les locaux
avec équipement de technologie de
l'information

Anwendung von Maßnahmen
für Erdung und Potentialausgleich
in Gebäuden mit Einrichtungen
der Informationstechnik

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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, 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

The first edition of this European Standard has been prepared by CENELEC/TC 215/WG 4, which was composed of experts of both CENELEC/TC 215 and ETSI/TC EE/WG EE 2 (former ETSI/STC EE 2). The second edition of this European Standard has been prepared by CENELEC/TC 215/WG 2.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50310 on 2005-09-01.

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) | 2006-10-01 |
| - latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2008-09-01 |

This standard has been produced within the framework of the following considerations:

- a) With the ongoing growth of the liberalised telecommunication market, the increasing advent of private telecommunication network operators, and the flourishing use of networking computers, the amount of Information Technology equipment installed in buildings and the complexity of these Information Technology installations are permanently growing.
- b) Information Technology equipment is generally installed either as stand alone equipment (e. g. personal or network computers, small PBXs), or held in racks, cabinets or other mechanical structures (e. g. switching systems, transmission systems, mobile base stations).
- c) CENELEC/SC 64B „*Electrical installations of buildings: Protection against thermal effects*“ had decided during their meeting in November 1997 not to harmonize IEC 60364-5-548:1996 „*Electrical installations of buildings – Part 5: Selection and erection of electrical equipment – Section 548: Earthing arrangements and equipotential bonding for information technology installations*“.
- d) This European Standard shall give guidance to Network operators, equipment providers and building owners to agree on a standardised bonding configuration that facilitates:
 - compliance of the Information Technology Equipment installation with functional requirements including Electromagnetic Compatibility (EMC) aspects of emission and immunity;
 - compatible building installation and equipment provisions;
 - installation of new equipment in buildings as well as expansion or replacement of installations in existing buildings with equipment coming from different suppliers;
 - a structured installation practice;
 - simple maintenance rules;
 - contracting on a common basis;
 - harmonisation in development, manufacturing, installation and operation.

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Introduction

This standard addresses earthing and bonding of information technology equipment in buildings in relation to safety, functional and electromagnetic performance, taking into account that the draft does not specify another earthing and bonding system but selects out of the existing ones (specified in HD 384/HD 60364 series together with IEC 60364-5-548) the best suitable system to information technology needs (CBN, MESH-BN, TN-S system).

Information regarding the general principles on earthing for (small) telecommunication installations in buildings has been published in Recommendation ITU-T K.31.

Depending on the degree of complexity and the size of the information technology installation, different levels of earthing and bonding are required. Starting from basic requirements on earthing and bonding this standard defines the refinements necessary to operate information technology equipment. The underlined concepts of this standard are in harmony with EN 300253. Therefore large information technology installations in buildings, which may require special care to avoid damage or upset from electromagnetic sources can make use of the bonding configurations and earthing techniques of EN 300253.

The specifications of EN 50310 are intended to provide optimum earthing and bonding conditions for buildings, where information technology installations are to be operated. EN 50310 should be applied at least in the case of newly constructed buildings and whenever possible in existing buildings (e. g. on the occasion of refurbishment). EN 50174-2 details the considerations for satisfactory installation and operation of information technology cabling within the environment of a building operating a low-voltage electricity distribution system (up to AC 1000 V rms). EN 50174-2 therefore refers, among others, to the requirements of EN 50310.

Figure 1 and Figure 2 show the schematic and contextual relationships between the standards produced by TC 215 for information technology cabling, namely this standard on equipotential bonding and earthing requirements, the generic cabling design standards (EN 50173 series), other application dependent cabling design standards (e.g. EN 50098 series), cabling installation standards (EN 50174 series) and testing of installed cabling (EN 50346).

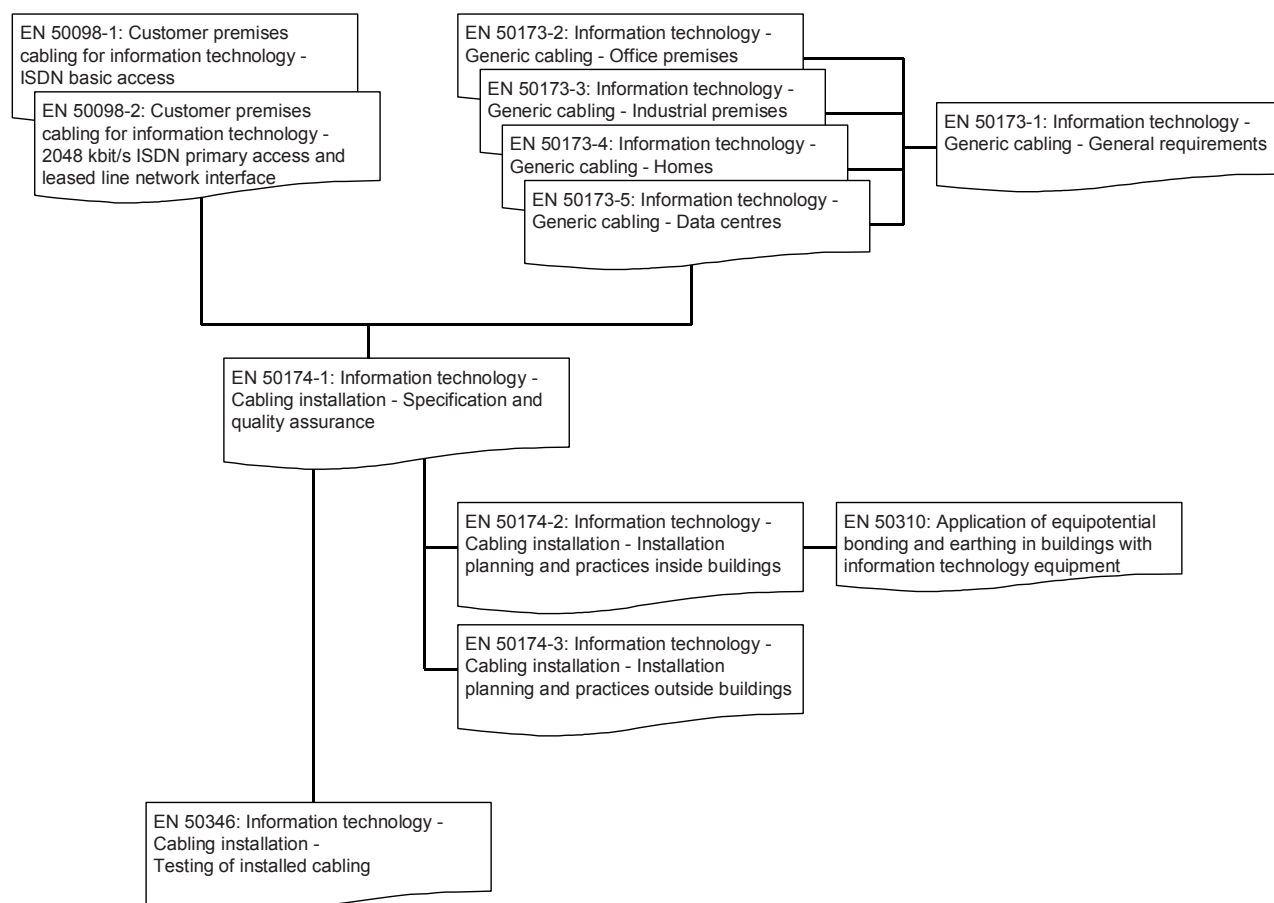


Figure 1 – Schematic relationship between EN 50310 and other standards relevant for information technology cabling systems

Building design phase	Cabling design phase	Planning phase	Implementation phase	Operation phase
EN 50310 5.2: Common bonding network (CBN) within a building 6.3: AC distribution system and bonding of the protective conductor (TN-S)	EN 50173 series except EN 50173-4 4: Structure 5: Channel performance 7: Cable requirements 8: Connecting hardware requirements 9: Requirements for cords and jumpers A: Link performance limits and EN 50173-4 4 and 5: Structure 6: Channel performance 8: Cable requirements 9: Connecting hardware requirements 10: Requirements for cords and jumpers A: Link performance limits or (and) EN 50098-1 or (and) EN 50098-2 or (and) other application standards	EN 50174-1 4: Specification considerations 5: Quality assurance 7: Cabling administration and EN 50174-2 4: Safety requirements 5: General installation practices for metallic and optical fibre cabling 6: Additional installation practice for metallic cabling 7: Additional installation practice for optical fibre cabling and EN 50174-3 See EN 50174-2 and 8: Additional installation practices for specific sites and services and (for equipotential bonding) EN 50310 5.2: Common bonding network (CBN) within a building 6.3: AC distribution system and bonding of the protective conductor (TN-S)	EN 50174-1 6: Documentation 7: Cabling administration and EN 50174-2 4: Safety requirements 5: General installation practices for metallic and optical fibre cabling 6: Additional installation practice for metallic cabling 7: Additional installation practice for optical fibre cabling and EN 50174-3 See EN 50174-2 and 8: Additional installation practices for specific sites and services and (for equipotential bonding) EN 50310 5.2: Common bonding network (CBN) within a building 6.3: AC distribution system and bonding of the protective conductor (TN-S) and EN 50346 4: General requirements 5: Test parameters for balanced cabling 6: Test parameters for optical fibre cabling	EN 50174-1 5: Quality assurance 7: Cabling administration 8: Repair and maintenance

Figure 2 – Contextual relationship between EN 50310 and other standards relevant for information technology cabling systems