SVENSK STANDARD SS-EN 50310

Fastställd	Utgåva	Sida	Ingår i
2006-06-19	2	1 (1+27)	SEK Område 215

Svenska Elektriska Kommissionen, SEK

Fastighetsnät för informationsöverföring – Jordning och potentialutjämning

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

Som svensk standard gäller europastandarden EN 50310:2006. Den svenska standarden innehåller den officiella engelska språkversionen av EN 50310:2006.

Nationellt förord

Tidigare fastställd svensk standard SS-EN 50310, utgåva 1, 2001, gäller ej fr o m 2008-09-01.

ICS 33.100; 35.020; 91.140.50

Denna standard är fastställd av Svenska Elektriska Kommissionen, SEK,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
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Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

Svenska Elektriska Kommissionen, SEK, svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50310

March 2006

ICS 33.100; 35.020; 91.140.50

Supersedes EN 50310:2000

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

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

Ref. No. EN 50310:2006 E

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).

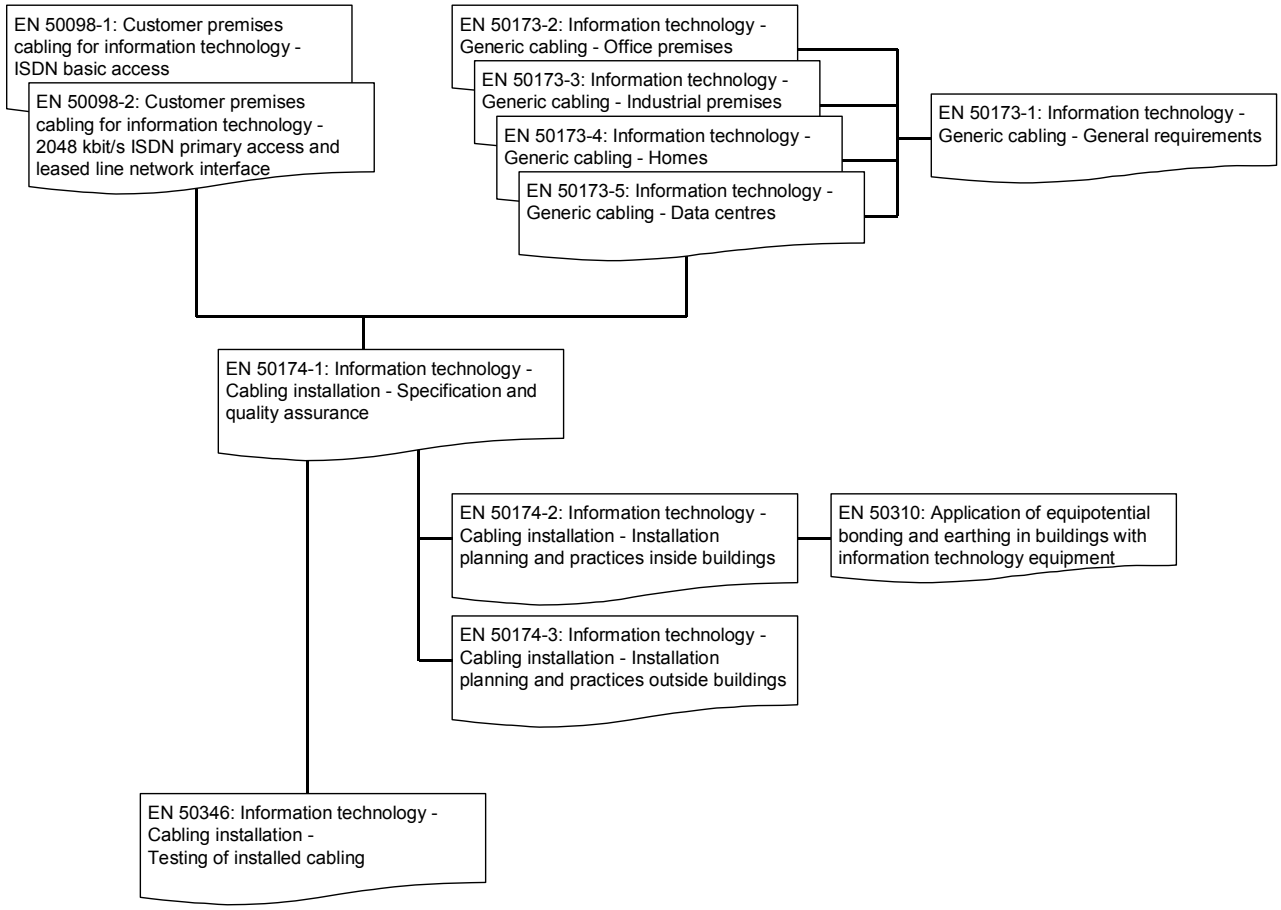

Figure 1 – Schematic relationship between EN 50310 and other standards relevant for information technology cabling systems

Building design phase	Cabling design phase	Planning phase	Implementation phase	Operation phase
EN 50310	**EN 50173 series except EN 50173-4**	**EN 50174-1**	**EN 50174-1**	**EN 50174-1**
5.2: Common bonding network (CBN) within a building 6.3: AC distribution system and bonding of the protective conductor (TN-S)	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**	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)	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	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

1 Scope

1.1 This European Standard applies to the equipotential bonding inside buildings in which information technology equipment is going to be installed. It contributes to the standardisation of information technology equipment and co-ordinates with the pre-requirements of the generic installation conditions as outlined in IEC 60364-5-548 to achieve the following targets:

a) safety from electrical hazards;

b) reliable signal reference within the entire information technology installation;

c) satisfactory electromagnetic performance of the entire information technology installation.

1.2 A defined bonding configuration down to the equipment level – independent of the equipment supplier – is intended to facilitate

– the installation, operation and maintenance of information technology installations in buildings;

– the interworking between different information technology equipment (interconnected by metallic links).

The specification of information technology equipment and of the pre-requirements of installation are subject to agreement of the parties (e. g. the equipment supplier and the purchaser or building owner).

1.3 This standard applies to buildings with information technology equpiment or in which the installation of information technology equipment is intended. It provides additional information for architects of buildings and for designers and installers of electrical installations of buildings on some installation concepts that limit electromagnetic influences. Basic considerations are given here to mitigate such influences that may result in disturbance. This standard does not apply to buildings which may be subject to a harsh electromagnetic environment, or rooms containing the generation, transmission or termination of voltages over AC 1000 V. This standard does not address the specific requirements for telecommunication centres; these are specified in EN 300253.

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 41003, *Particular safety requirements for equipment to be connected to telecommunication networks*

EN 50083 (series), *Cable networks for television signals, sound signals and interactive services* [1)], [2)]

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 60079-14, *Electrical apparatus for explosive gas atmospheres – Part 14: Electrical installations in hazardous areas (other than mines) IEC 60079-14:2002)*

EN 60446, *Basic and safety principles for man-machine interface, marking and identification - Identification of conductors by colours or numerals (IEC 60446:1999)*

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1) Antenna systems are included in the scope of the EN 50083 series.

2) EN 50083 series will be gradually transformed into EN 60728 series.