EESTI STANDARD EVS-EN 50090-9-1:2005

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Home and Building Electronic Systems (HBES) Part 9-1: Installation requirements - Generic cabling for HBES class 1 twisted pair

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EESTI STANDARDIKESKUS

EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 50090-9-1:2005 sisaldab Euroopa standardi EN 50090-9-1:2004 ingliskeelset teksti. Käesolev dokument on jõustatud 23.02.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 50090-9-1:2005 consists of the English text of the European standard EN 50090-9-1:2004. This document is endorsed on 23.02.2005 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This standard provides common rules for the planning and engineering as well as installation of HBES cabling systems taking into account the layout of the cable support, cables and connectors, and the commissioning of HBES.	**Scope:** This standard provides common rules for the planning and engineering as well as installation of HBES cabling systems taking into account the layout of the cable support, cables and connectors, and the commissioning of HBES.

ICS 97.120

Võtmesõnad:

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Standardite reprodutseerimis- ja levitamisõigus kuulub Eesti Standardikeskusele

EUROPEAN STANDARD **EN 50090-9-1**

NORME EUROPÉENNE

EUROPÄISCHE NORM May 2004

ICS 97.120

English version

Home and Building Electronic Systems (HBES) Part 9-1: Installation requirements - Generic cabling for HBES Class 1 Twisted Pair

Systèmes électroniques pour les foyers domestiques et les bâtiments (HBES) Partie 9-1: Spécifications d'installation - Câblage générique pour paire torsadée Classe 1

Elektrische Systemtechnik für Heim und Gebäude (ESHG) Teil 9-1: Installationsanforderungen - Verkabelung von Zweidrahtleitungen ESHG Klasse 1

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CENELEC

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

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Ref. No. EN 50090-9-1:2004 E

Foreword

This European Standard was prepared by Technical Committee CENELEC TC 205, Home and Building Electronic Systems (HBES).

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50090-9-1 on 2003-12-01.

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) 2004-12-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2006-12-01

EN 50090-9-1 is part of the EN 50090 series of Eur opean Standards, which will comprise the following parts:

Part 1: Standardization structure

Part 2: System overview

Part 3: Aspects of application

Part 4: Media independent layers

Part 5: Media and media dependent layers

Part 6: Interfaces

Part 7: System management

Part 8: Conformity assessment of products

Part 9: Installation requirements

TRs CENELEC TC 205 technical reports

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Introduction

Home and Building Electronic Systems (HBES) are intended to control devices on networks supporting HBES Class 1 applications (simple control and command) according to CENELEC R205-004.

HBES may be installed in homes and buildings together with other networks. In the past the different networks have been installed independently, usually by different installers. Such separated systems are only widely accepted by the user when the implementation is simple and the cost of installation is low.

One of the primary functions of HBES is to control mains powered devices and therefore in particular the cabling for HBES needs to coexist with the mains distribution network and needs to follow the mains installation rules. Consequently, this document contains description of coexistence of HBES Class 1 Twisted Pair and other networks concerning electrical safety and EMC matters.

1 Scope

This standard provides common rules for the planning and engineering as well as installation of HBES cabling systems taking into account the layout of the cable support, cables and connectors, and the commissioning of HBES.

It applies to HBES networks installed according to the legal boundaries of the electrical utilities additionally.

The assessment of an installation shall be based on this standard and CLC/TS 50090-9-2.

Rules for co-existence of HBES Class 1 cabling with mains power, and other networks (i.e. those covered by EN 50173 series, EN 50174 series, EN 50083 series) are also specified.

This part of EN 50090 recommends one specific implementation but allows any solution which supports the required HBES functionality without disturbing, or being disturbed by, other application systems or networks.

This part of EN 50090 is also intended as a predisposition and pre-cabling guide-line for Twisted Pair Class 1.

This document concerns only HBES Class 1 application supported by Twisted Pair (TP) media, and coexistence with HBES Class 2 (Class 1 plus simple voice and stable picture transmission), HBES Class 3 (Class 2 plus complex video transfers, e.g. CAT V, and IT) and power networks. Network coexistence is ensured by infrastructure (see 5.2) and installation requirements.

This document applies specifically to the installation of copper cables.

Power line carrier, and optical fibre communication are outside the scope of this document.

The environmental conditions of EN 50090-2-2 apply to enclosure, connectors and generally to all Twisted Pair HBES devices of the installation.

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*
EN 50090-2-2	*Home and Building Electronic Systems (HBES) - Part 2-2: System overview - General technical requirements*
EN 50090-2-3 [1)]	*Home and Building Electronic Systems (HBES) - Part 2-2: System overview - General functional safety requirements for products intended to be integrated in HBES*

[1)] At draft stage.

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CLC/TS 50090-9-2 [2)]	*Home and Building Electronic Systems (HBES) - Part 9-2: Installation requirements - Inspection and testing of HBES installation*
EN 50173-1:2002	*Information technology – Generic cabling systems – Part 1: General requirements and office areas*
EN 50174-1:2000	*Information technology – Cabling installation - Part 1: Specification and quality assurance*
EN 50174-2:2000	*Information technology – Cabling installation - Part 2: Installation planning and practices inside buildings*
EN 50290 series	*Communication cables*
EN 55022 + A1	*Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement (CISPR 22:1997, modified)*
EN 55024	*Information technology equipment – Immunity characteristics - Limits and methods of measurement (CISPR 22:1997, modified)*
EN 60603-7	*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 60603-8	*Connectors for frequencies below 3 MHz for use with printed boards - Part 8: Two-part connectors for printed boards, for basic grid of 2,54 mm (0,1 in), with square male contacts of 0,63 mm x 0,63 mm (IEC 60603-8:1990)*
EN 60715	*Dimensions of low-voltage switchgear and controlgear - Standardized mounting on rails for mechanical support of electrical devices in switchgear and controlgear installations (IEC 60715:1981 + A1:1995)*
ENV 61024-1	*Protection of structures against lightning - Part 1 General Principles (IEC 61024-1:1990, modified)*
EN 61140	*Protection against electric shock - Common aspects for installation and :uipment (IEC 61140:2001)*
EN 61508 series	*Functional safety of electrical/electronic/programmable electronic safety-related systems (IEC 61508 series)*
HD 384.5.54	*Electrical installations of buildings - Part 5: Selection and erection of electrical equipment - Chapter 54: Earthing arrangements and protective conductors (IEC 60364-5-54:1980, modified)*
HD 625.1	*Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests (IEC 60664-1:1992, modified)*
IEC 60189-2	*Low-frequency cables and wires with PVC insulation and PVC sheath - Part 2: Cables in pairs, triples, quads and quintuples for inside installations*
IEC 60364-4-44	*Electrical installations of buildings - Part 4-44: Protection for safety - Protection against voltage disturbance and electromagnetic disturbances*
IEC 60670-1:2002	*Boxes and enclosures for electrical accessories for household and similar fixed electrical installations - Part 1: General requirements*
IEC 60807-2	*Rectangular connectors for frequencies below 3 MHz - Part 2: Detail specification for a range of connectors, with assessed quality, with trapezoidal shaped metal shells and round contacts - Fixed solder contact types*
IEC 60807-3	*Rectangular connectors for frequencies below 3 MHz - Part 3: Detail specification for a range of connectors with trapezoidal shaped metal shells and round contacts - Removable crimp contact types with closed crimp barrels, rear insertion/rear extraction*

[2)] Under consideration

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ISO/IEC 15018 [3)] *Information technology - Integrated cabling system for homes*

EN ISO 16484-2 *Building automation and control systems (BACS) - Part 2: Hardware*

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this document the following definitions apply.

3.1.1
application (in the sense of network application)
a system with its associated transmission method which is supported by telecommunications/ HBES cabling
[EN 50173-1:2002, definition 3.1.2, with /HBES modified]

3.1.2
bridge
device that connects two or more segments of a network at the physical and data link layers of layers the ISO-OSI basic reference model.

NOTE This device can also perform message filtering based upon MAC layer addresses.

[EN ISO 16484-2, definition 3.28]

3.1.3
broadband
signals requiring a wide bandwidth for their transmission, e.g. video

3.1.4
building
an individual fixed structure. This may contain commercial residential, or light industrial premises

3.1.5
bus
a common path within an apparatus or station over which signals from a number of channels pass with separation achieved by time division multiplexing
[IEC 60050, Part 704]

3.1.6
cable
assembly of one or more cable units of the same type and category in an overall sheath. It may include an overall screen
[EN 50173-1:2002, definition 3.1.7]

3.1.7
cable element
the smallest construction unit in a cable. A cable element may have a screen
[EN 50173-1:2002, definition 3.1.8]

3.1.8
cable type
description of a cable according to its construction e.g. coaxial, TP, etc.

3.1.9
cable unit
single assembly of one or more cable elements usually of the same type or category. A cable unit may have a screen
[EN 50173-1:2002, definition 3.1.9]

3.1.10
cabling
system of telecommunication/HBES cables, cords and connecting hardware that support the operation of information technology respectively HBES equipment
[EN 50173-1:2002, definition 3.1.10, with /HBES modified]

[3)] At draft stage.

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