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Splošne zahteve za stanovanjske in stavbne elektronske sisteme (HBES) in sisteme za avtomatizacijo in krmiljenje stavb (BACS) - 5-1. del: Zahteve, pogoji in priprava preskusov EMC

General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 5-1: EMC requirements, conditions and test set-up

Allgemeine Anforderungen an die Elektrische Systemtechnik für Heim und Gebäude (ESHG) und an Systeme der Gebäudeautomation (GA) - Teil 5-1: EMV-Anforderungen, Bedingungen und Prüfungen

Exigences générales relatives aux systèmes électroniques pour les foyers domestiques et les bâtiments (HBES) et aux Systèmes de Gestion Technique du Bâtiment (SGTB) - Partie 5-1: CEM Exigences générales, condition et montage d'essais

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97.120	Avtomatske krmilne naprave za dom	Automatic controls for household use

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English version

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This European Standard was approved by CENELEC on 2010-04-01. 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.

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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.

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CENELEC

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

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Foreword

This European Standard was prepared by a joint working group of CLC/TC 205, Home and Building Electronic Systems (HBES) and CEN/TC 247, Building Automation, Controls and Building Management (BACS). It was submitted to the formal vote and was accepted by CENELEC as EN 50491-5-1 on 2010-04-01.

This document supersedes the relevant parts of EN 50090-2-2:1996 [1)]; it is referenced by CEN/TC 247 and CLC/TC 205.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates are proposed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2011-04-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2013-04-01

As a result of the discussions at the CLC/TC 205 meeting on 2004-10-5/6 concerning the structuring of their standards in general parts and open system parts (see CLC/TC 205/Sec0413/INF) the following new parts of EN 50491 under the generic title *"General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS)"* under the task of the JWG CEN/TC 247–CLC/TC 205 are proposed:

Part 2 Environmental conditions;

Part 3 Electrical safety requirements;

Part 4-1 [2)] Functional safety requirements (for non safety related systems);

Part 4-2 [2)] Functional safety requirements (for safety related systems);

Part 5-1 EMC requirements, conditions and test set-up;

Part 5-2 EMC requirements for HBES/BACS used in residential, commercial and light industry environment;

Part 5-3 EMC requirements for HBES/BACS used in industry environment.

This draft European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directive EMC Directive 2004/108/EC. See Annex ZZ.

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1) EN 50090-2-2:1996 + Corr. Mar 1997 + A1:2002 + A2:2007, *Home and Building Electronic Systems (HBES) – Part 2-2: System overview – General technical requirements*

2) Under consideration.

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Introduction

EN 50491 series deals with developing and testing Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS).

The expression HBES/BACS covers any combination of HBES and/or BACS products including their separate connected/detachable devices linked together via one or more networks.

Part 5 of this series applies to HBES/BACS devices to ensure a common level of EMC requirements.

1 Scope

This product family standard sets the minimum level of EMC performance for HBES/BACS products intended to be connected to an HBES/BACS system.

A set of devices connected to perform a stand alone application is not considered to be an HBES/BACS system and therefore are outside the scope of this European Standard.

This European Standard provides the general performance requirements and test setups for EMC for all products connected to HBES/BACS.

This connection can be wired (e.g. communication cable, power line) or wireless (e.g. radiofrequency, infrared).

This European Standard is applicable (but not limited) to

– operator stations and other human system interface devices,

– devices for management functions,

– control devices, automation stations and application specific controllers,

– field devices and their interfaces,

– cabling and interconnection of devices,

– dedicated devices for engineering and commissioning tools for HBES/BACS.

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 50065 (series)	Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz and 1,6 MHz to 30 MHz
EN 50428	Switches for household and similar fixed electrical installations – Collateral standard – Switches and related accessories for use in home and building electronic systems (HBES)
EN 50491-3:2009	General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) – Part 3: Electrical safety requirements
EN 55022	Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement (CISPR 22, mod.)
EN 60669-2-1	Switches for household and similar fixed electrical installations – Part 2-1: Particular requirements – Electronic switches (IEC 60669-2-1, mod.)
EN 60730 (series)	Automatic electrical controls for household and similar use (IEC 60730 series, mod.)
EN 61000-3-2	Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤ 16 A per phase (IEC 61000-3-2)

EN 61000-3-3	Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection (IEC 61000-3-3)
EN 61000-4-2	Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test (IEC 61000-4-2)
EN 61000-4-3	Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test (IEC 61000-4-3)
EN 61000-4-4	Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test (IEC 61000-4-4)
EN 61000-4-5	Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test (IEC 61000-4-5)
EN 61000-4-6	Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields (IEC 61000-4-6)
EN 61000-4-8	Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test (IEC 61000-4-8)
EN 61000-4-11	Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests (IEC 61000-4-11)
EN 62041	Power transformers, power supply units, reactors and similar products – EMC requirements (IEC 62041)
ETSI EN 301 489 (series)	Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 50491-3:2009 and the following apply.

3.1.1
HBES/BACS products
HBES/BACS products are devices intended to be used for control, monitoring, operation or management of building services and/or home electronic systems which can interact via a communication network

3.1.2
port
particular interface of the specified device with the external electromagnetic environment (see Figure 1)

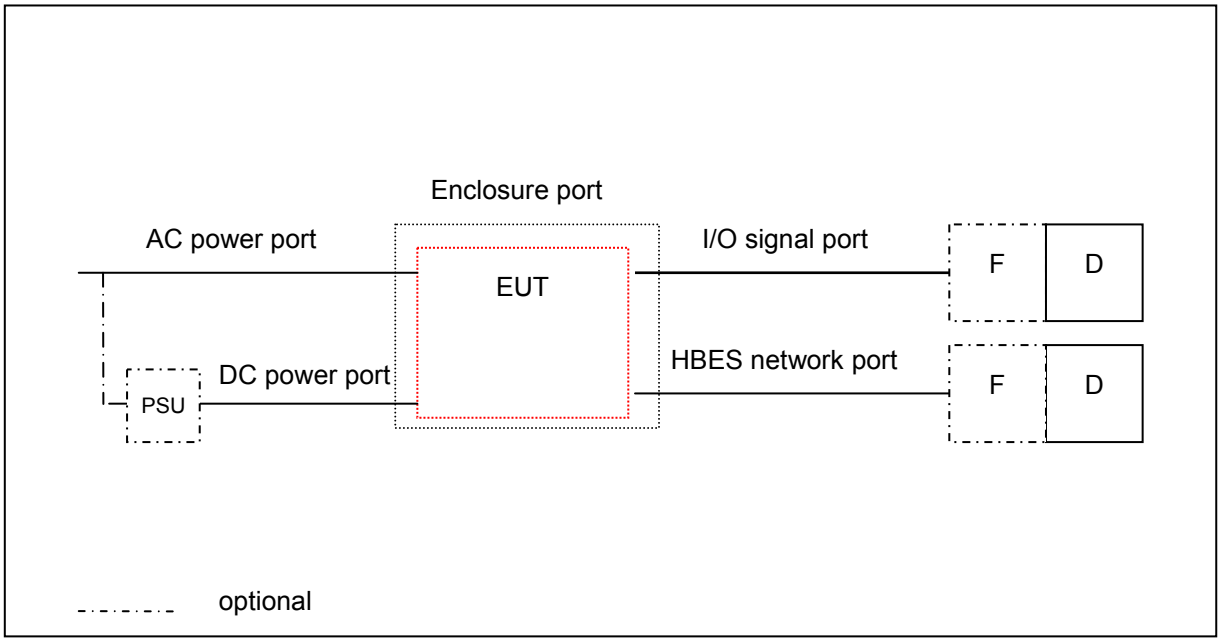

Figure 1 – EUT ports

3.1.3
enclosure port
physical boundary of the apparatus which electromagnetic fields may radiate through or impinge on

3.1.4
I/O signal port
port at which a conductor or cable intended to carry auxiliary signals (excluding network signals according to Definition 3.1.5) is connected to the apparatus

NOTE Examples are analogue inputs, outputs and control lines, etc.

3.1.5
power port
port at which a conductor or cable carrying the primary electrical power (a.c. or d.c.) needed for the operation (functioning) of an apparatus or associated apparatus is connected to the apparatus

3.1.6
HBES/BACS network port
port at which a conductor or cable intended to carry communication signals between the different devices of the HBES/BACS network is connected to the apparatus

NOTE For test purposes, the HBES/BACS network port is equivalent to the telecommunications/network port according to EN 61000-6-3.

3.2 Abbreviations

For the purposes of this document, the following abbreviations apply.

AE	Auxiliary Equipment
BACS	Building Automation and Control Systems
CDN	Coupling De-coupling Network
CRT	Cathode Ray Tube
D	Device needed for functional test of the EUT