

BS EN 50491-5-3:2010



BSI Standards Publication

General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS)

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

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National foreword

This British Standard is the UK implementation of EN 50491-5-3:2010. Together with BS EN 50491-3:2010, BS EN 50491-5-1:2010 and BS EN 50491-5-2:2010, it partially supersedes BS EN 50090-2-2:1996+A2:2007.

The UK participation in its preparation was entrusted to Technical Committee IST/6, Data communications.

A list of organizations represented on this committee can be obtained on request to its secretary.

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+ A2:2007 (partially)

English version

General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 5-3: EMC requirements for HBES/BACS used in industry environment

Exigences générales relatives
aux systèmes électroniques pour
les foyers domestiques et les bâtiments
(HBES) et aux Systèmes de Gestion
Technique du Bâtiment (SGTB) -
Partie 5-3: Exigences CEM relatives
aux HBES/SGTB destinés à être utilisés
en environnement industriel

Allgemeine Anforderungen
an die Elektrische Systemtechnik für Heim
und Gebäude (ESHG) und an Systeme
der Gebäudeautomation (GA) -
Teil 5-3: EMV-Anforderungen
an ESHG/GA für den Gebrauch
im Industriebereich

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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 approved by CENELEC as EN 50491-5-3 on 2010-04-01.

This document supersedes the relevant parts of EN 50090-2-2:1996¹⁾; 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 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) 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 4-1²⁾ Functional safety requirements (for non safety related systems);
- Part 4-2²⁾ 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.

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 System (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

The scope of EN 50491-5-1:2010 applies, with the following modification:

Replace the 3rd paragraph with the following ones:

This is the specific part of EN 50491-5 for HBES/BACS used in industry environment.

The environment covered by this standard is industrial, according to the definition in EN 61000-6-2.

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 50491-5-1	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
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 61000-6-2	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments (IEC 61000-6-2)
EN 61000-6-4	Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments (IEC 61000-6-4)

3 Terms, definitions and abbreviations

For the purposes of this document, the terms, definitions and abbreviations given in EN 50491-5-1:2010 apply.

4 General requirements

The general requirements of EN 50491-5-1:2010 apply.

5 Performance criteria

The performance criteria of EN 50491-5-1:2010 apply.

6 Standard test conditions

The standard test conditions of EN 50491-5-1:2010 apply.

7 EMC requirements

7.1 Immunity requirements

For products used in industrial environments the immunity requirements of the generic standard EN 61000-6-2 apply to enclosure, AC/DC power and I/O signal ports. The performance criteria and the test set ups are defined in EN 50491-5-1.

Test levels for HBES/BACS network ports are specified in Table 1.

Table 1 – EMC immunity requirements for HBES/BACS network port

Phenomenon	Basic standard	Test specification	Performance criterion	Remarks
Radio-frequency common mode	EN 61000-4-6	(0,15 to 80) MHz 80 % AM (1 kHz) 10 V	A ^b	a,c,d
Fast transients (bursts)	EN 61000-4-4	Tr/Th 5/50 ns 5 kHz Repetition ± 0,5 kV	A	c Capacitive clamp used
Transients (surge)	EN 61000-4-5	Tr/Th 1,2/50(8/20) µs ± 2 kV	B	e,f
Line to earth				
Line to line				
- balanced transmission		No test		
- unbalanced transmission		± 1 kV	B	
<p>^a The test level can also be defined as the equivalent current into a 150 Ω load.</p> <p>^b Except for the ITU broadcast frequency band 47 MHz to 68 MHz, where the level shall be 3 V and the performance criteria A.</p> <p>^c Applicable only to communication interfaces with cables whose total length according to the manufacturer's functional specification may exceed 3 m.</p> <p>^d The test level specified is the r.m.s. value of the unmodulated carrier.</p> <p>^e Applicable only to communication interfaces with cables whose total length according to the manufacturer's functional specification may exceed 30 m.</p> <p>^f Where normal functioning cannot be achieved because of the impact of the CDN on the EUT, this test is not required</p>				

7.2 Emission requirements

The requirements of EN 61000-6-4 apply.

Annex ZZ
(informative)

Coverage of Essential Requirements of EC Directives

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers all relevant essential requirements as given in Article 1 of Annex I of the EC Directive 2004/108/EC.

Compliance with this standard provides one means of conformity with the specified essential requirements of the Directive(s) concerned.

WARNING: Other requirements and other EC Directives may be applicable to the products falling within the scope of this standard.

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