

# Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz —

**Part 2-2: Immunity requirements for  
mains communications equipment and  
systems operating in the range of  
frequencies 95 kHz to 148,5 kHz and  
intended for use in industrial  
environments**

The European Standard EN 50065-2-2:2003, with the incorporation of amendment A1:2005, has the status of a British Standard

ICS 33.040.30

## National foreword

This British Standard was published by BSI. It is the UK implementation of EN 50065-2-2:2003, including corrigenda August 2003, October 2006, and amendment A1:2005.

The start and finish of text introduced or altered by CENELEC amendment is indicated in the text by tags **A1** **A1**. Tags indicating changes to CENELEC text carry the number of the CEN amendment. For example, text altered by CENELEC amendment A1 is indicated in the text by **A1** **A1**.

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### Summary of pages

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| 14798<br>Corrigendum No. 1 | 28 November 2003 | Corrections to Tables 2a and 2b, item c) Units column |
| 16004                      | 31 January 2007  | See national foreword                                 |
|                            |                  |                                                       |
|                            |                  |                                                       |

English version

**Signalling on low-voltage electrical installations  
in the frequency range 3 kHz to 148,5 kHz  
Part 2-2: Immunity requirements for mains communications equipment  
and systems operating in the range of frequencies 95 kHz to 148,5 kHz  
and intended for use in industrial environments**

Transmission de signaux sur les réseaux électriques basse tension dans la bande de fréquences de 3 kHz à 148,5 kHz  
Partie 2-1: Exigences d'immunité pour les appareils et les systèmes de communication sur le réseau électrique dans la bande de fréquences de 95 kHz à 148,5 kHz et destinés à être utilisés dans un environnement industriel

Signalübertragung auf elektrischen Niederspannungsnetzen im Frequenzbereich 3 kHz bis 148,5 kHz  
Teil 2-2: Störfestigkeitsanforderungen an Netz-Datenübertragungsgeräte und -systeme die im Frequenzbereich 95 kHz bis 148,5 kHz betrieben werden und für den Gebrauch im Industriebereich bestimmt sind

This European Standard was approved by CENELEC on 2001-12-04. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

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

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

This European Standard was prepared by SC 205A, Mains communicating systems, of Technical Committee CENELEC TC 205, Home and Building Electronic Systems (HBES).

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50065-2-2 on 2001-12-04.

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) 2003-08-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2004-08-01

This part of this standard defines limits and test methods for the immunity of mains communication equipment and systems (MCES) operating in the range of frequencies from 95 kHz to 148,5 kHz and intended for use in industrial environments. Immunity requirements for similar equipment intended for operation in residential, commercial and light industrial environments are given in Part 2-1 of this standard. Immunity requirements and tests applicable to Electricity Suppliers' equipment and systems operating in the band 3 kHz to 95 kHz are given in Part 2-3 of this standard.

These tests and limits represent essential electromagnetic compatibility and immunity requirements for the environment according to the scope. They may accordingly be applied to MCES according to the Scope of Part 2-3 if lower immunity requirements are sufficient for the considered MCES. Not all known disturbances have been included for testing purposes which have been limited to those disturbances known to be critical for the operation of such equipment including specific MCES disturbances such as conducted narrow band.

The immunity requirements have been selected to ensure an adequate level of immunity for MCES in industrial environments. The levels do not however cover extreme cases which may occur in any location but with an extremely low probability of occurrence.

NOTE This standard closely follows EN 50082-2, the generic immunity standard for the industrial environment, from which much of the material is taken. However the nature of MCES is such that the performance criteria given in clause 5 of this standard differ from those given in EN 50082-2, particularly regarding the recovery of equipment following a disturbance. For clarity and completeness all the affected sections of EN 50082-2 are therefore repeated in this part.

Annexes designated "normative" are part of the body of the standard.  
In this standard, annex A is normative.

## Foreword to amendment A1

This amendment to the European Standard EN 50065-2-2:2003 was prepared by SC 205A, Mains communicating systems, of Technical Committee CENELEC TC 205, Home and Building Electronic Systems (HBES).

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- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2008-07-01

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## 1 Scope

This standard applies to electrical equipment using signals in the frequency range 95 kHz to 148,5 kHz to transmit or receive information on low voltage electrical systems, in industrial environments. In the case of equipment which includes functions other than the transmission or reception of information on low voltage electrical supplies, this standard applies only to that part of the equipment intended for such transmission or reception of information. Other parts of the equipment shall comply with the immunity standard or standards relevant to the functions of those other parts. In the event of tests being specified in those other standards of a different severity and where the construction of the equipment is such that the functions cannot be tested separately, the higher severity shall apply to all affected functions.

The object of this standard is to limit mutual influence between mains communication equipment and systems (MCES) operating in different frequency bands as defined in EN 50065-1 and to contribute to ensuring electromagnetic compatibility in general. It specifies essential immunity requirements and test methods, including those tests which are to be performed during type-testing of MCES on low-voltage installations, for electromagnetic interference in general and more specific interference coming from other MCES. It therefore defines the immunity test requirements for apparatus in relation to continuous and transient disturbances, both conducted and radiated, and electrostatic discharges. Test requirements are specified for each port considered.

This standard gives limits which are applicable to products operating in industrial environments. The levels do not however cover extreme cases which may occur in any location but with a low probability of occurrence. In special cases situations will arise where the level of disturbances may exceed the levels specified in this standard e.g. where a hand-held transmitter is used in proximity to an apparatus. In these instances special mitigation measures may have to be employed.

It does not specify immunity between mains communication systems operating in the same band (as defined in EN 50065-1) or immunity to signals originating from power line carrier systems operating on high or medium voltage networks.

Safety considerations are not included in this standard.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

|                 |                                                                                                                                                                                    |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| [A1] EN 50065-1 | Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz – Part 1: General requirements, frequency bands and electromagnetic disturbances [A1] |
| EN 55022 1998   | Information technology equipment – Radio disturbance characteristics - Limits and methods of measurement (CISPR 22:1997, mod)                                                      |