

**Madalpinge-elektripaigaldistel olev
signalisatsioon sagedusalal 3 kHz kuni
148,5 kHz. Osa 2-1: Häiringukindluse
nõuded sagedusalal 95 kHz kuni 148,5 kHz
töötavatele võrgutoite ühendusseadmetele
ja süsteemidele, mis on mõeldud
kasutamiseks elamupiirkondades**

Signalling on low-voltage electrical installations in
the frequency range 3 kHz to 148,5 kHz Part 2-1:
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 residential, commercial and light industrial
environments

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 50065-2-1:2003 sisaldab Euroopa standardi EN 50065-2-1:2003 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 08.05.2003 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 50065-2-1:2003 consists of the English text of the European standard EN 50065-2-1:2003.</p> <p>This document is endorsed on 08.05.2003 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>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, residential, commercial and light industrial environments</p>	<p>Scope:</p> <p>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, residential, commercial and light industrial environments</p>
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ICS 33.040.30

Võtmesõnad: data transmission, definitions, frequency ranges, immunity, interference, low voltage mains, radio disturbances, signal transmission, supply mains, testing

**Signalling on low-voltage electrical installations
in the frequency range 3 kHz to 148,5 kHz**
**Part 2-1: 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 residential, commercial
and light 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 les environnements résidentiel, commercial et de l'industrie légère

Signalübertragung auf elektrischen Niederspannungsnetzen im Frequenzbereich 3 kHz bis 148,5 kHz
Teil 2-1 : Störfestigkeitsanforderungen an Netz-Datenübertragungsgeräte und -systeme, die im Frequenzbereich 95 kHz bis 148,5 kHz betrieben werden und für den Gebrauch in Wohnbereichen, Geschäfts- und Gewerbebereichen sowie in Kleinbetrieben bestimmt sind

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CENELEC

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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 50065-2-1 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) 2003-10-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2004-10-01

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 residential, commercial and light industrial environments. Immunity requirements for similar equipment intended for operation in industrial environments are given in Part 2-2 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.

These tests and limits represent essential electromagnetic compatibility and immunity requirements. Correspondingly 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 residential, commercial and light 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 50082-1, the Generic Immunity Standard for the residential, commercial and light 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 50082-1, particularly regarding the recovery of equipment following a disturbance. For clarity and completeness all the affected sections of EN 50082-1 are therefore repeated in this part.

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

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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, residential, commercial and light 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 residential, commercial and light 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).

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
EN 50082-1		Electromagnetic compatibility – Generic immunity standard Part 1: Residential, commercial and light industry
EN 55022	1998	Information technology equipment – Radio disturbance characteristics - Limits and methods of measurement (CISPR 22:1997, mod.)
EN 61000-3-2		Electromagnetic compatibility (EMC) – Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase) (IEC 61000-3-2)

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, mod.)
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)
CISPR 16-1	1999	Specification for radio disturbance and immunity measuring apparatus and methods – Part 1: Radio disturbance and immunity measuring apparatus
IEC 60050-161		International Electrotechnical Vocabulary – Chapter 161: Electromagnetic compatibility

3 Definitions

For the purpose of this standard, the following definitions together with those in IEC 60050-161 apply.

3.1

electromagnetic interference

See definition given in IEC 60050-161.

3.2

immunity

the ability of MCES to perform within specified limits in the presence of an electromagnetic disturbance

NOTE 1 Influences between MCES operating in the same frequency band (see EN 50065-1) are not taken into account.

NOTE 2 See IEC 60050 Chapter 161 for a more general definition.

3.3

immunity level

the maximum level of a given electromagnetic disturbance incident on the equipment for which it remains capable of operating at a specified degree of performance
(Definition given in IEC 60050-161)