SLOVENSKI STANDARD

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Signalizacija po nizkonapetostnih električnih napeljavah v frekvenčnem območju od 3 kHz do 148,5 kHz – 4-4. del: Nizkonapetostni ločilni filtri – Impedančni filter

Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz - Part 4-4: Low voltage decoupling filter - Impedance filter

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English version

Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz
Part 4-4: Low voltage decoupling filter - Impedance filter

Transmission de signaux sur les réseaux électriques basse tension dans la bande de fréquences de 3 kHz à 148,5 kHz
Partie 4-4: Filtres basse tension de découplage - Filtre d'impédance

Signalübertragung auf elektrischen Niederspannungsnetzen im Frequenzbereich 3 kHz bis 148,5 kHz
Teil 4-4: Niederspannungs-Entkopplungsfilter - Impedanzfilter

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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.

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CENELEC
European Committee for Electrotechnical Standardization
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Europäisches Komitee für Elektrotechnische Normung

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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 50065-4-4 on 2002-04-01.

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) 2003-08-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2005-04-01

EN 50065 consists of the following parts, under the general title: 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
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
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
Part 2-3	Immunity requirements for mains communications equipment and systems operating in the range of frequencies 3 kHz to 95 kHz and intended for use by electricity suppliers and distributors
Part 4-1	Low voltage decoupling filters – Generic specification
Part 4-2	Low voltage decoupling filters – Safety requirements
Part 4-3	Low voltage decoupling filters – Incoming filter
Part 4-4	Low voltage decoupling filters – Impedance filter
Part 4-5	Low voltage decoupling filters – Segmentation filter
Part 4-6	Low voltage decoupling filters – Phase coupler
Part 7	Equipment impedance

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1 Scope

This standard applies to impedance filters in a mains communication system for phase to neutral voltage not exceeding 250 V a.c. and a nominal current not exceeding 125 A, intended for household and similar fixed installation including residential, commercial and light industrial buildings. This standard also applies to "plug-in filters".

These filters (see Figure 1) are used to set a suitable impedance, in the nominal frequency range of the mains signalling system, at any point of the low voltage mains network where a low impedance equipment is connected, in order to allow reliable operation of mains signalling system.

These impedance filters can be used either in utility or consumer networks. They may also be used in conjunction with incoming filters and segmentation filters.

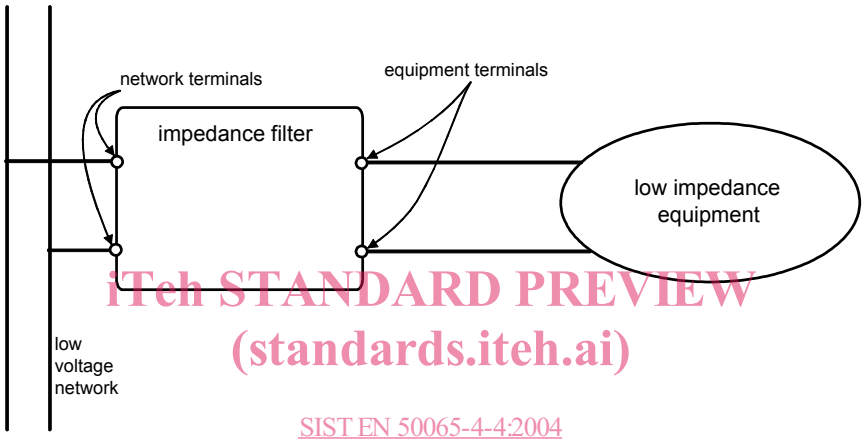

Figure 1 - The application of impedance filters

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 50065-2-1 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

EN 50065-2-2 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

EN 50065-2-3 Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz – Part 2-3: Immunity requirements for mains communications equipment and systems operating in the range of frequencies 3 kHz to 95 kHz and intended for use by electricity suppliers and distributors

EN 50065-4-1 Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz – Part 4-1: Low voltage decoupling filters - Generic specification

EN 50065-4-2 Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz – Part 4-2: Low voltage decoupling filters - Safety requirements

HD 625.1 Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests (IEC 60664-1, mod.)

EN 61000-4-5 Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques - Surge immunity test (IEC 61000-4-5)

EN 61000-4-14 Electromagnetic compatibility (EMC) – Part 4-14: Testing and measurement techniques - Voltage fluctuation immunity test (IEC 61000-4-14)

3 Impedance filter electrical characteristics

The filter shall meet the requirements given in EN 50065-4-1 and EN 50065-4-2.

3.1 Overvoltage

Requirements in accordance with 7.1.5 of EN 50065-4-2:

- category III for filters used on the consumer network;
- category IV for filters used on the utility network.

3.2 EMC

According to EN 50065-2-1 for consumer side in residential, commercial and light industrial environments.

According to EN 50065-2-2 for consumer side in industrial environments.

According to EN 50065-2-3 for utility side.

4 Filter impedance characteristics

4.1 Terminations

The impedance filter shall have a network port connected to the mains communication network and an equipment port connected to either a low impedance equipment or a low impedance network. Implementation of impedance filter may not distinguish both ports when designed symmetrically.

4.2 Operating frequency range

The operating frequency range is a (reduced) frequency range the filter is designed for.

It shall be in the frequency band 3 kHz to 95 kHz for the utility network,

It shall be in the frequency band 95 kHz to 148,5 kHz for the consumer network.

4.3 Impedance

At the network port when measured in the operating frequency range in accordance with 6.1 of EN 50065-4-1, the filter shall have a minimum impedance modulus value of 10 Ω.

At the equipment port there is no impedance requirement.

NOTE When used in conjunction with an incoming filter type 3 (at the utility side), the combined filter shall fulfil the requirements of 4.4 of the incoming filter standard EN 50065-4-3, measured in accordance with 6.1 of EN 50065-4-1.

4.4 Transfer function

The function of the impedance filter is only to optimise the impedance of the mains network and consequently there is no need to define a transfer function.

4.5 Safety

The filter shall meet the requirements given in EN 50065-4-1 and EN 50065-4-2.