# SLOVENSKI STANDARD
# SIST-TP CLC/TR 50412-1:2007

**01-oktober-2007**

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**Naprave in sistemi za komunikacijo po elektroenergetskih vodnikih, ki se uporabljajo v nizkonapetostnih inštalacijah v frekvenčnem razponu od 1,6 MHz do 30 MHz - 1. del: Splošno**

Power line communication apparatus and systems used in low-voltage installations in the frequency range 1,6 MHz to 30 MHz -- Part 1: General

Kommunikationsgeräte und -systeme auf elektrischen Niederspannungsnetzen im Frequenzbereich 1,6 MHz bis 30 MHz-Teil 1: Allgemein



Equipements et systèmes de courant porteur en ligne utilisés dans les installations basse tension dans la bande de fréquence 1,6 MHz à 30 MHz -- Part 1: Generalités



**Ta slovenski standard je istoveten z:** **CLC/TR 50412-1:2007**

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**ICS:**

| | | |
|---|---|---|
| 33.040.60 | Telekomunikacije po elektroenergetskih vodih | Powerline telecommunications |
| 91.140.50 | Sistemi za oskrbo z elektriko | Electricity supply systems |

**SIST-TP CLC/TR 50412-1:2007** **en**

TECHNICAL REPORT

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

# CLC/TR 50412-1

May 2007

ICS 33.100.20

English version

# Power line communication apparatus and systems used in low-voltage installations in the frequency range 1,6 MHz to 30 MHz - Part 1: General

Equipements et systèmes de courant porteur en ligne utilisés dans les installations basse tension dans la bande de fréquence 1,6 MHz à 30 MHz - Part 1: Generalités

Kommunikationsgeräte und -systeme auf elektrischen Niederspannungsnetzen im Frequenzbereich 1,6 MHz bis 30 MHz - Teil 1: Allgemein



This Technical Report was approved by CENELEC on 2006-12-25.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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**



Ref. No. CLC/TR 50412-1:2007 E

## Foreword

This Technical Report was prepared by SC 205A/WG 10, Mains communicating systems, of Technical Committee CENELEC TC 205, Home and Building Electronic Systems (HBES).

The text of the draft was submitted to vote and was approved by CENELEC as CLC/TR 50412-1 on 2006-12-25.

## 1 Scope

This Technical Report applies to electrical equipment using signals in the frequency range 1,6 MHz to 30 MHz to transmit information on low voltage electrical systems, either on the public supply system or within installations in consumers' premises.

It is a Technical Report covering the different standards for HF Power Line produced by SC205A.

It points to related documents about:

- frequency bands, coexistence and filters;
- limits for the terminal output levels in the operating band;
- limits for conducted and radiated disturbance (product & installation EMC);
- measurement methods.

It does not specify the signal modulation methods nor the coding methods nor functional features. Environmental requirements and tests are not included.

The requirements have been selected so as to ensure an adequate level of EMC and EMI for all apparatus (e.g. including residential, commercial, light industrial and industrial premises).



The severity levels required by this Technical Report may not 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 Technical Report (e.g. where a hand-held transmitter is used in proximity to an apparatus). In these instances special mitigation measures may be required.



## 2 Normative references

Void

## 3 Structure of the EN/TR 50412 series

The EN/TR 50412 series will consist of the following parts:

| | |
|---|---|
| CLC/TR 50412-1 | Power line communication apparatus and systems used in low-voltage installations in the frequency range 1,6 MHz to 30 MHz – Part 1: General |
| EN 50412-2-1 | Power line communication apparatus and systems used in low-voltage installations in the frequency range 1,6 MHz to 30 MHz – Part 2-1: Residential, commercial and industrial environment - Immunity requirements |
| EN 50412-2-2[1)] | Power line communication apparatus and systems used in low-voltage installations in the frequency range 1,6 MHz to 30 MHz – Part 2-2: Residential, commercial and industrial environment - Emission requirements |

[1)] At draft stage

EN 50412-3[1)] Power line communication apparatus and systems used in low-voltage installations in the frequency range 1,6 MHz to 30 MHz – Part 3: Low-voltage decoupling filters – Generic specification

The EN/TR 50412 series have two standards in common with the EN 50065 series (Low Frequency): EN 50065-4-2 and EN 50065-4-7.

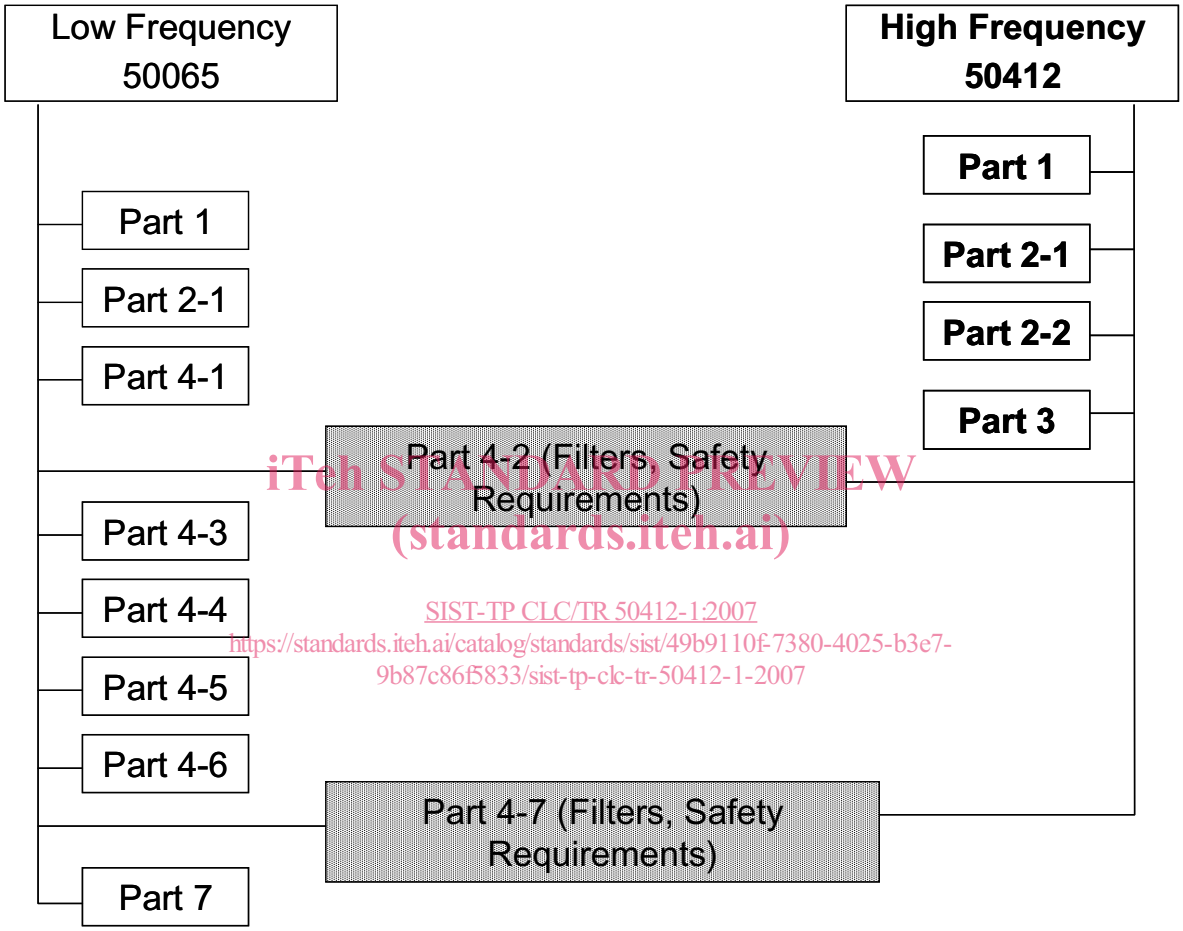




**Figure 1 – 50412 and 50065 series**

## 4 Definitions and abbreviations

### 4.1 Definitions

The definitions in IEC 60050-161 apply. The following particular definitions are used in this Technical Report.

**4.1.1**
**port**
particular interface of the specified apparatus with the external electromagnetic environment (see Figure 2)

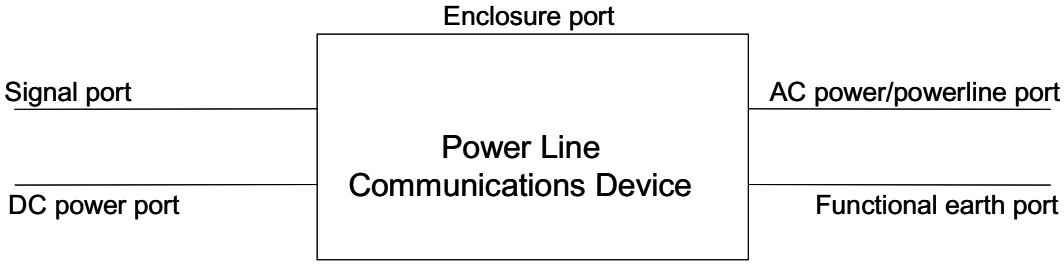


**Figure 2 - Description of PLC ports**

**4.1.2**
**type 1 equipment**
a special class for equipment defined by the manufacturer as high integrity and able to operate entirely without manual intervention, for example: Head-end equipment in HV/MV or MV/LV transformer substations

**4.1.3**
**type 2 equipment**
all equipment other than that classed as Type 1



## 4.2 Abbreviations



| | |
|---|---|
| EMC | Electromagnetic Compatibility |
| EMI | Electromagnetic Interference |
| HF | High Frequency |
| HV | High Voltage |
| IEC | International Electrotechnical Committee |
| IEV | International Electrotechnical Vocabulary |
| LV | Low Voltage |
| MV | Medium Voltage |
| PLC | Power Line Communication |

# Annex A
(informative)

## List of related standards

All related topics are published in a dedicated CENELEC standard: EN 50065 series.

EN 50065-1:2001

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 50065-2-1:2003

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 50065-2-2:2003

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 50065-2-3:2003



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 50065-4-1:2001

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 50065-4-2:2001

Signalling on low-voltage electrical installations in the frequency range 3 kHz to 148,5 kHz and 1,6 MHz to 30 MHz - Part 4-2: Low voltage decoupling filters - Safety requirements

EN 50065-4-3:2003

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

EN 50065-4-4:2003

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

EN 50065-4-5:2003

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