

**SLOVENSKI
STANDARD**

SIST-TS CLC/TS 50433:2006

marec 2006

Smernice za pripravo prehoda na širokopasovni sistem »Vsem dostopna širokopasovnost širine 25Mbit/s in več«

Guidelines for paving the way for broadband "Broadband, 25 Mbit/s and mor for All"

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ICS 33.180.10

Referenčna številka
SIST-TS CLC/TS 50433:2006(en)

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SIST-TS CLC/TS 50433:2006

<https://standards.iteh.ai/catalog/standards/sist/4a308ed9-44a1-4c99-9f75-1b2534713880/sist-ts-clc-ts-50433-2006>

English version

**Guidelines for paving the way for broadband
"Broadband, 25 Mbit/s and more for All"**

Leitfaden zur Wegbereitung für Breitband
"Breitband, 25 Mbit/s und mehr für Alle"

This Technical Specification was approved by CENELEC on 2004-09-11.

CENELEC members are required to announce the existence of this TS in the same way as for an EN and to make the TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This Technical Specification was prepared by the Technical Committee CENELEC TC 86A, Optical fibres and optical fibre cables.

The text of the draft was submitted to the vote and was approved by CENELEC as CLC/TS 50433 on 2004-09-11.

The following date was fixed:

- latest date by which the existence of the CLC/TS
has to be announced at national level (doa) 2005-03-11
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Introduction

This Technical Specification is intended to provide general guidelines for improving metropolitan edge and local access networks in order to accelerate their growth in capacity and further enhance the coverage of global broadband services. The purpose is to ensure smooth migration from today's services to future services requiring very high speed transmission capabilities in all parts of the network, based on typical household expected future needs.

The paper identifies different scenarios to enable modular and coherent networks evolution while maintaining necessary levels of interoperability. It also reviews existing standards, and provides a draft list of standards to be developed.

1 Scope

This paper globally addresses generalisation of optical fibre throughout metropolitan edge and local access networks, including reach into end-user connections.

2 General

2.1 Typical levels of network infrastructure

The reference model for communications infrastructure typically includes four levels of network:

- long haul or backbone,
- transit or metropolitan edge and back haul,
- access, including transport and local distribution,
- residential, including end-user connection.

See schema "Typical levels of network infrastructure" in Annex A.

2.2 Recommendation

While long haul (or backbone) networks have been largely equipped with optical fibre, there is still little or no fibre in access and intermediate transmission networks.

In order to meet the objective of widespread access to broadband, a gradual upgrading of today's transmission network capacities is required:

- first phase - ongoing:
optimisation of existing copper infrastructure by deployment of DSL access ¹⁾, cable TV network upgrades and introduction of new wireless solutions (Wireless-LAN ²⁾, satellite, Fixed Wireless Access),

¹⁾ Evolution from asymmetrical to symmetrical access offering very high capacity (10 Mbit/s and more).

²⁾ Including WiFi.

- second phase:

provoke with no delay the optical fibre deployment in access networks (e.g. Fibre To The x), in order to avoid bottlenecks and stifling of network growth (see scenarios below).

2.3 Household future broadband needs

It is expected that the short-term future needs of the typical household will correspond to three TV channels (3 x 5 Mbit/s for MPEG2 DVD quality encoding) plus one high-speed data channel (5 to 10 Mbit/s) including audio and voice channels.

The global expected balance is a minimum of 25 Mbit/s per household.

Some European countries are already considering 100 Mbit/s as a minimum.

3 Different fibre penetration strategies

3.1 Possible scenarios

Three different fibre penetration scenarios can be envisaged:

- reconfiguration of the installed infrastructure by reuse of existing civil works (upgrade of existing conduits),
- use of alternative rights of way (e.g. using other types of conduits already available urbanised areas such as gas, water, sewage),
- greenfield deployments.

3.2 Constraints

Each scenario should guarantee the necessary degree of coherence (migration, co-location, and interoperability) between projects and needs. Progressive evolution of existing networks and the deployment of new infrastructure should be properly balanced at the regional level. How to optimise interoperability between and within the different levels (backbone, edge and access) of communication networks should also be addressed.

The rollout of optical fibre in edge and access infrastructure implies network reconfiguration and the installation of new segments (both support and equipment) in the transmission network. Such reconfiguration can notably facilitate connection of a large number of customers (end users), without having to systematically create new conduits, thus bypassing prohibitive cost issues.

3.3 Migration from current to high capacity transmission networks

Network evolution must be mastered as a whole, in order to ensure that within a given geographical area, increases in transmission capacity really correspond to the end user needs in that area.

Global migration to high capacity networks should take place in clearly defined steps to avoid any loss in the quality of service already provided to customers.

4 Complementary studies

In view of progressive realignment in edge and local access capacities, the following subjects should be taken into account and further developed in each of the scenarios.

4.1 Criteria for choosing a scenario?

4.2 Fibre capillarity/penetration (first-mile)?

4.3 Level of technology maturity and economies of scale per scenario?

4.4 Bottleneck risks and issues?

4.5 Support and service co-location issues?

5 Standardization aspects

The first two scenarios described in Clause 3 have been adopted for further study by CENELEC in the framework of the e-Europe 2003 action plan, other related studies are being addressed at ISO/IEC.

5.1 Status of standardization

Annex B provides an open list of the main approved or ongoing CENELEC documents related to infrastructure development.

5.2 Future documents

- Ongoing: EN 50174 series “Information technology - Cabling installation”
- Scheduled: e-Europe studies - CLC/TC 86A and CLC/TC 215
 - prES XXX “Alternative rights of way, existing urban conduits”
 - update of EN 187105
- To be launched:
 - reconfiguration operator and customer infrastructures
 - other alternative rights of way solutions
 - new installation technologies
 - new indoor cabling

Annex A
(informative)

Typical levels of network infrastructure

