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Informacijska tehnologija - Izvedba kabelskih aplikacij BCT v skladu z EN 50173-4

Information technology - Implementation of BCT applications using cabling in accordance with EN 50173-4

Informationstechnik - Realisierung von RuK-Netzanwendungen mit Verkabelung nach EN 50173-4

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Technologies de l'information - Mise en oeuvre des applications BCT utilisant un câblage réalisé selon la EN 50173-4

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Informationstechnik - Realisierung von RuK-
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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
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European foreword

This document (CLC/TR 50173-99-2:2020) was prepared by the Technical Committee CENELEC TC 215, Electrotechnical aspects of telecommunication equipment.

This document supersedes CLC/TR 50173-99-2:2010.

The following major modification has been made compared to CLC/TR 50173-99-2:2010:

- a) Annex A.4 revised;
- b) Normative references updated.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

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Introduction

EN 50173-4 specifies generic cabling in homes, installed to support one or more of the following groups of applications and based upon balanced and coaxial cabling as appropriate:

- a) Information and Communication Technologies (ICT);
- b) Broadcast and Communication Technologies (BCT).

EN 50173-4 also provides requirements for backbone cabling subsystems within premises containing multiple homes by reference to:

- 1) EN 50173-1 for cabling to support ICT applications;
- 2) standards of the EN 50083 and EN 60728 series to support BCT applications.

EN 50083 and EN 60728 standards deal with cable networks including equipment and associated methods of measurement for headend reception, processing and distribution of television signals, sound signals and their associated data signals and for processing, interfacing and transmitting all kinds of signals for interactive services using all applicable transmission media including community antenna television (CATV) and master antenna television/satellite master antenna television (MATV/SMATV) networks.

This document describes the following:

- the functional elements and structure of the cabling, external to homes, supporting community antenna television (CATV) and master antenna television/satellite master antenna television (MATV/SMATV) networks in accordance with EN 60728-1;
- the location and accommodation of the home network interface (HNI) in accordance with EN 60728-1; <https://standards.iteh.ai/catalog/standards/sist/97dec17b-6c1c-4141-a03d-flf106ee7eeb/sist-tp-clc-tr-50173-99-2-2020>
- requirements for additional cabling performance requirements (i.e. insertion loss slope between 47 MHz and 862 MHz) and necessary amendments of the reference implementations of generic cabling within the home in accordance with EN 50173-4 in order to support the CATV, MATV/SMATV networks in accordance with EN 60728-1.

1 Scope

This document describes the following:

- a) the functional elements and structure of the cabling, external to homes, supporting community antenna television (CATV) and master antenna television/satellite master antenna television (MATV/SMATV) networks in accordance with EN 60728-1;
- b) the location and accommodation of the home network interface (HNI) in accordance with EN 60728-1;
- c) requirements for additional cabling performance requirements (i.e. insertion loss slope between 47 MHz and 862 MHz) and necessary amendments of the reference implementations of generic cabling within the home in accordance with EN 50173-4 in order to support the CATV, MATV/SMATV networks in accordance with EN 60728-1.

Safety (electrical safety and protection, optical power, fire, etc.) and electromagnetic compatibility (EMC) requirements are outside the scope of this document and are covered by standards and regulations. However, information given in this document could be of assistance in meeting these standards and regulations.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50173-1:2018, *Information technology – Generic cabling systems – Part 1: General requirements*

[SIST-TP CLC/TR 50173-99-2:2020](https://standards.iteh.ai/catalog/standards/sist-tp-clc-tr-50173-99-2-2020)

EN 50173-4:2018, *Information technology – Generic cabling systems – Part 4: Homes*

<https://standards.iteh.ai/catalog/standards/sist-tp-clc-tr-50173-99-2-2020>

EN 50174 (all parts), *Information technology – Cabling installation*

EN 60728-1:2014, *Cable networks for television signals, sound signals and interactive services – Part 1: System performance of forward paths*

EN 60728-1-1:2014, *Cable networks for television signals, sound signals and interactive services – Part 1-1: RF cabling for two way home networks (IEC 60728-1-1:2014)*

EN 60728-11, *Cable networks for television signals, sound signals and interactive services – Part 11: Safety*¹

¹ At the time of publication of this document, EN 60728-11:2017 + A11:2018 were applicable.

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this document the following definitions apply in addition to those of EN 50173-1 and EN 50173-4.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1.1

branch feeder

feeder used for connecting a distribution point to a building network interface (BNI) or home network interface (HNI), as appropriate

3.1.2

building network

network for transmission of television signal, sound signals and interactive services inside a multi-dwelling building (excluding the home networks within the dwellings)

3.1.3

building network interface

interface between external network and the building network within a multi-dwelling building for the network for the transmission of television signal, sound signals and interactive services

Note 1 to entry: This point is also called "transfer point" or "external network interface".

3.1.4

community antenna television

system which is designed to provide sound and television signals received by terrestrial, satellite antennas or provided by locally generated sources to the outlets of a large group of buildings

3.1.5

headend

equipment which is connected between receiving antennas or other signal sources and the remainder of the cable networks, to process the signals to be distributed

Note 1 to entry: The headend may, for example, comprise antenna amplifiers, frequency converters, combiners, separators and generators.

3.1.6

home network

RF cable network inside a single dwelling (one-family house or one unit of a multi-dwelling building) in the SOHO (Small Offices Home Offices) environments or in the rooms of hotels, hospitals, etc.; the preferred topology of this network is a star

Note 1 to entry: This network carries television signals, sound signals and interactive services up to the coaxial RF interface (input and/or output) of the terminal equipment. It may comprise active equipment, passive equipment, cables and connectors

3.1.7

home network interface

interface for access to the network for transmission of television signal, sound signals and interactive services inside a home (single dwelling)

3.1.8**hub headend**

headend that distributes the signals provided by a super trunk feeder to two or more trunk feeders

3.1.9**local headend**

headend which is connected direct to the system trunk feeders or to a short-haul trunk feeder replacement link

3.1.10**master antenna television system**

system which is designed to provide sound and television signals received by terrestrial antennas to the outlets of a building or a group of buildings

3.1.11**remote headend**

headend from which signals are delivered to a local headend via a long-distance terrestrial link

3.1.12**satellite master antenna television system**

system which is designed to provide sound and television signals received by satellite to the outlets of a building or a group of buildings

3.1.13**slope**

difference in gain or attenuation at 47 MHz and 862MHz between any two points in a system

Note 1 to entry: The slope sign is considered:

- a) negative when the attenuation increases with frequency (cables) or the gain (amplifiers) decreases with frequency;
- b) positive when the gain (amplifiers) increases with frequency (compensating slope).

3.1.14**spur feeder**

feeder to which splitters, subscriber taps, or looped system outlets are connected

3.1.15**subscriber feeder**

feeder connecting a subscriber tap to a system outlet or, where the latter is not used, directly to the subscriber equipment

Note 1 to entry: A subscriber feeder may include filters and balun transformers.

3.1.16**supertrunk feeder**

connects only between headends or between a headend and the first distribution point

3.1.17**system outlet (SO)**

synonymous with the broadcast outlet (BO) interface of EN 50173-4 (except where a balun is installed between a balanced cabling BO to provide a coaxial interface to the receiver, in which case the SO is defined at the coaxial interface of the balun)

3.1.18**trunk feeder**

feeder used for the transmission of signals between a headend and a distribution point or between distribution points

CLC/TR 50173-99-2:2020**3.2 Abbreviations**

For the purposes of this document the following abbreviations apply in addition to those of EN 50173-1 and EN 50173-4.

B	Balun
BN	Building Network
BNI	Building Network Interface
BO	Broadcast Outlet
CATV	Community Antenna Television
DP	Distribution Points
HCL	Home Cabling Link
HN	Home Network
HNI	Home Network Interface
MATV	Master Antenna Television
SMATV	Satellite Master Antenna Television
SO	System Outlet

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4 Cabling structure**4.1 General**

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This document describes implementations of generic cabling in homes in accordance with EN 50173-4 and their connection to external cabling in order to support the BCT applications of Annex F of EN 50173-1 and in accordance with the EN 60728 series of standards.

The delivery of BCT applications to support CATV or MATV/SMATV networks in accordance with the EN 60728 series of standards to the home, independent of the premises that accommodate the home, is described in terms of:

- a) the functional elements required;
- b) the cabling subsystems used to provide connections between the functional elements;
- c) the interface (HNI) at which the cabling in accordance with EN 50173-4 is connected;
- d) any additional application-specific functional elements within the home.

4.2 Functional elements of networks in accordance with EN 60728

EN 60728-1 describes the functional elements to support BCT applications in the case of CATV or MATV/SMATV cable networks and includes the main functional elements described in Table 1.