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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

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

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

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

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

This Technical Report was approved by CENELEC on 2010-01-01.

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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 Report was prepared by the Technical Committee CENELEC TC 215, Electrotechnical aspects of telecommunication equipment, in cooperation with experts from CENELEC TC 209/WG 4, System performance requirements.

The text of the draft was submitted to vote and was approved by CENELEC as CLC/TR 50173-99-2 on 2010-01-01.

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

Contents

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);

c) Command, Controls and Communications in Buildings (CCCB).

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 Technical Report 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;

– 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 Technical Report 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 Technical Report and are covered by standards and regulations. However information given in this Technical Report may be of assistance in meeting these standards and regulations.

2 Normative references

The following referenced documents are indispensable for the application 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 50173-1:2007 *Information technology – Generic cabling systems – Part 1: General requirements*

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

EN 50174 series *Information technology – Cabling installation*

EN 60728-1:2008, *Cable networks for television signals, sound signals and interactive services – Part 1: System performance of forward paths* (IEC 60728-1:2007)

EN 60728-1-1:2010, *Cable networks for television signals, sound signals and interactive services – Part 1-1: RF cabling for two way home networks* (IEC 60728-1-1:2010)

EN 60728-5, *Cable networks for television signals, sound signals and interactive services – Part 5: Headend equipment* (IEC 60728-5:2007)

EN 60728-11, *Cable networks for television signals, sound signals and interactive services – Part 11: Safety* (IEC 60728-11:2005, modified)

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.

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 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 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. 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 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 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

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

4 Cabling structure

4.1 General

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.

Table 1 – Main functional elements of networks in accordance with EN 60728 series

CATV networks	MATV/SMATV networks
Remote Headend	Headend
Local headend	
Hub headend	
Distribution point (DP)	
Building network interface (BNI)	Building network interface (BNI)
Floor distributor	Floor distributor
Home network interface (HNI)	Home network interface (HNI)
System outlet (SO)	System outlet (SO)
NOTE The BNI and floor distributor are only relevant in premises containing multiple homes and within which there is a defined building cabling subsystem, separate from that of the home	

4.3 Cabling subsystems of networks in accordance with EN 60728

4.3.1 General

EN 60728-1 describes the interconnection of the functional elements as shown in schematic form in Figure 1 for CATV cable networks and in Figure 2 for MATV/SMATV cable networks.

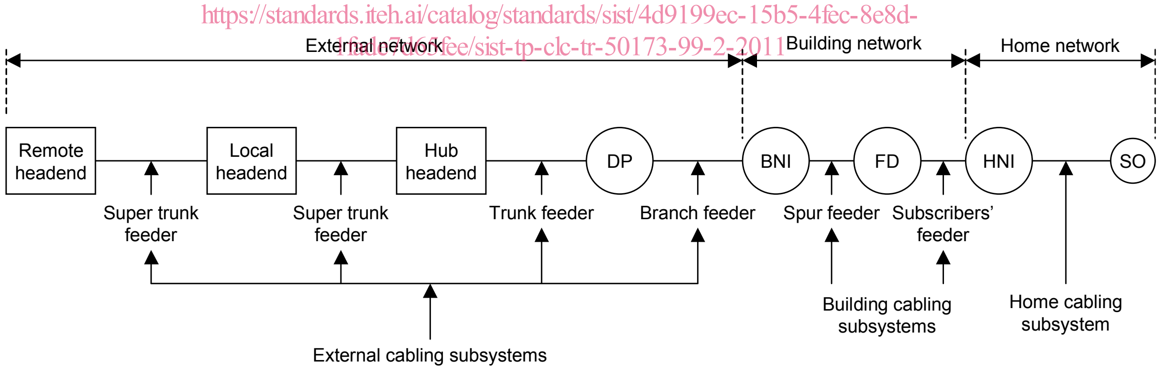

Figure 1 – Structure of generic cabling for BCT applications (CATV)