

**Televisiooni- ja raadiolevisignaali ning  
multimeedia kaabeljaotussüsteemid. Osa 1:  
Süsteemi edastusteede jõudlus (kavandatud  
asendada EN 50083-7)**

Cable networks for television signals, sound signals  
and interactive services -- Part 1: System performance  
of forward paths

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 60728-1:2008 sisaldab Euroopa standardi EN 60728-1:2008 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 19.08.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 16.05.2008.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 60728-1:2008 consists of the English text of the European standard EN 60728-1:2008.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 19.08.2008 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 16.05.2008.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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**Võtmesõnad:** cable television, characteristics, coaxial cables, measurements, sound broadcasting, telecasting, television broadcasting

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English version

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

Réseaux de distribution par câbles  
pour signaux de télévision,  
signaux de radiodiffusion sonore  
et services interactifs -  
Partie 1: Performance de la voie directe  
(CEI 60728-1:2007)

Kabelnetze für Fernsehsignale,  
Tonsignale und interaktive Dienste -  
Teil 1: Systemanforderungen  
in Vorwärtsrichtung  
(IEC 60728-1:2007)

This European Standard was approved by CENELEC on 2008-04-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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.

This European Standard exists in two official versions (English and German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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**

## Foreword

The text of document 100/1242/FDIS, future edition 4 of IEC 60728-1, prepared by technical area 5, Cable networks for television signals, sound signals and interactive services, of IEC TC 100, Audio, video and multimedia systems and equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60728-1 on 2008-04-01.

This European Standard supersedes EN 50083-7:1996 + A1:2000 + corrigendum August 2007.

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) 2009-01-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2011-04-01

For this European Standard the informative Annex J of IEC 60728-1:2007 shall be disregarded and has been replaced by the informative Annex ZB, *A-deviations*.

Annexes ZA and ZB have been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 60728-1:2007 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61169-2	NOTE Harmonized as EN 61169-2:2007 (not modified).
IEC 61169-24	NOTE Harmonized as EN 61169-24:2001 (not modified).
CISPR 16-1	NOTE Harmonized in EN 55016-1 series (not modified).

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## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Where a standard cited below belongs to the EN 50000 series, the European Standard applies instead of the relevant International Standard.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
-	-	Coaxial cables - Part 2-4: Sectional specification for cables used in cabled distribution networks - Indoor drop cables for systems operating at 5 MHz - 3 000 MHz	EN 50117-2-4	- <sup>1)</sup>
-	-	Characteristics of DAB receivers	EN 50248	- <sup>1)</sup>
-	-	Digital Video Broadcasting (DVB): Framing structure, channel coding and modulation for 11/12 GHz satellite services	ETSI EN 300 421	- <sup>1)</sup>
-	-	Digital Video Broadcasting (DVB): Framing structure, channel coding and modulation for cable systems	ETSI EN 300 429	- <sup>1)</sup>
-	-	Digital Video Broadcasting (DVB): Specification for Service Information (SI) in DVB systems	ETSI EN 300 468	- <sup>1)</sup>
-	-	Digital Video Broadcasting (DVB): Satellite Master Antenna Television (SMATV) distribution systems	ETSI EN 300 473	- <sup>1)</sup>
-	-	Digital Video Broadcasting (DVB): Framing structure, channel coding and modulation for digital terrestrial television	ETSI EN 300 744	- <sup>1)</sup>
-	-	Digital Video Broadcasting (DVB): Multipoint Video Distribution Systems (MVDS) at 10 GHz and above	ETSI EN 300 748	- <sup>1)</sup>
-	-	Digital Video Broadcasting (DVB): Microwave Multipoint Distribution Systems (MMDS) below 10 GHz	ETSI EN 300 749	- <sup>1)</sup>
-	-	Digital Video Broadcasting (DVB); Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications	ETSI EN 302 307	- <sup>1)</sup>

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<sup>1)</sup> Undated reference.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
-	-	Satellite Earth Stations and Systems (SES); Television Receive-Only (TVRO) satellite earth stations operating in the 11/12 GHz frequency bands	ETSI ETS 300 784	- <sup>1)</sup>
-	-	Digital Video Broadcasting (DVB); Guidelines on implementation and usage of Service Information (SI)	ETSI TR 101 211	- <sup>1)</sup>
-	-	Digital Video Broadcasting (DVB); Measurement guidelines for DVB systems	ETSI TR 101 290	- <sup>1)</sup>
IEC 60050-705	- <sup>1)</sup>	International Electrotechnical Vocabulary (IEV) - Chapter 705: Radio wave propagation	-	-
IEC 60050-712	- <sup>1)</sup>	International Electrotechnical Vocabulary (IEV) - Chapter 712: Antennas	-	-
IEC 60050-713	- <sup>1)</sup>	International Electrotechnical Vocabulary (IEV) - Part 713: Radiocommunications: transmitters, receivers, networks and operation	-	-
IEC 60050-725	- <sup>1)</sup>	International Electrotechnical Vocabulary (IEV) - Chapter 725: Space radiocommunications	-	-
IEC 60617	Data-base	Graphical symbols for diagrams	-	-
IEC 60728-2	- <sup>1)</sup>	Cabled distribution systems for television and sound signals - Part 2: Electromagnetic compatibility for equipment	EN 50083-2	2006 <sup>2)</sup>
IEC 60728-3	- <sup>1)</sup>	Cable networks for television signals, sound signals and interactive services - Part 3: Active wideband equipment for coaxial cable networks	EN 60728-3	2006 <sup>2)</sup>
IEC 60728-5	- <sup>1)</sup>	Cable networks for television signals, sound signals and interactive services - Part 5: Headend equipment	EN 60728-5	2008 <sup>2)</sup>
IEC 60728-10	- <sup>1)</sup>	Cable networks for television signals, sound signals and interactive services - Part 10: System performance of return paths	EN 60728-10	2006 <sup>2)</sup>
IEC 60728-11 (mod)- <sup>1)</sup>	- <sup>1)</sup>	Cable networks for television signals, sound signals and interactive services - Part 11: Safety	EN 60728-11	2005 <sup>2)</sup>
IEC 60728-12	- <sup>1)</sup>	Cabled distribution systems for television and sound signals - Part 12: Electromagnetic compatibility of systems	EN 50083-8	2002 <sup>2)</sup>

<sup>2)</sup> Valid edition at date of issue.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60966-2-4	- <sup>1)</sup>	Radio frequency and coaxial cable assemblies - Part 2-4: Detail specification for cable assemblies for radio and TV receivers - Frequency range 0 to 3 000 MHz, IEC 61169-2 connectors	EN 60966-2-4	2003 <sup>2)</sup>
IEC 60966-2-5	- <sup>1)</sup>	Radio frequency and coaxial cable assemblies - Part 2-5: Detail specification for cable assemblies for radio and TV receivers - Frequency range 0 to 1 000 MHz, IEC 61169-2 connectors	EN 60966-2-5	2003 <sup>2)</sup>
IEC 60966-2-6	- <sup>1)</sup>	Radio frequency and coaxial cable assemblies - Part 2-6: Detail specification for cable assemblies for radio and TV receivers - Frequency range 0 to 3 000 MHz, IEC 61169-24 connectors	EN 60966-2-6	2003 <sup>2)</sup>
ISO/IEC 13818-1	- <sup>1)</sup>	Information technology - Generic coding of moving pictures and associated audio information: Systems	-	-
ISO/IEC 13818-2	- <sup>1)</sup>	Information technology - Generic coding of moving pictures and associated audio information - Part 2: Video	-	-
ISO/IEC 13818-3	- <sup>1)</sup>	Information technology - Generic coding of moving pictures and associated audio information - Part 3: Audio	-	-
ISO/IEC 13818-4	- <sup>1)</sup>	Information technology - Generic coding of moving pictures and associated audio information - Part 4: Conformance testing	-	-
ISO/IEC 14496-1	- <sup>1)</sup>	Information technology - Coding of audio-visual objects - Part 1: Systems	-	-
ISO/IEC 14496-2	- <sup>1)</sup>	Information technology - Coding of audio-visual objects - Part 2: Visual	-	-
ISO/IEC 14496-3	- <sup>1)</sup>	Information technology - Coding of audio-visual objects - Part 3: Audio	-	-
ISO/IEC 14496-4	- <sup>1)</sup>	Information technology - Coding of audio-visual objects - Part 4: Conformance testing	-	-
ITU-R Recommendation BS.412-9	- <sup>1)</sup>	Planning standards for terrestrial FM sound broadcasting at VHF	-	-
ITU-R Recommendation BT.417-4	- <sup>1)</sup>	Minimum field strengths for which protection may be sought in planning an analogue terrestrial television service	-	-

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ITU-R Recommendation BT.470-7	- <sup>1)</sup>	Conventional analogue television systems	-	-
ITU-R Recommendation BT.500-11	- <sup>1)</sup>	Methodology for the subjective assessment of the quality of television pictures	-	-
ITU-T Recommendation J.61	- <sup>1)</sup>	Transmission performance of television circuits designed for use in international connections	-	-
ITU-T Recommendation J.63	- <sup>1)</sup>	Insertion of test signals in the field-blanking interval of monochrome and colour television signals	-	-



## Annex ZB (informative)

### A-deviations

**A-deviation:** National deviation due to regulations, the alteration of which is for the time being outside the competence of the CENELEC national member.

This European Standard does not fall under any Directive of the EC.

In the relevant CENELEC countries these A-deviations are valid instead of the provisions of the European Standard until they have been removed.

Clause   Deviation

#### 3.1.52   **Norway**

(Regulations on Electronic Communications Networks and Services (Ecom Regulations) laid down by the Norwegian Ministry of Transport and Communications on 16 February 2004)

When installing coaxial cable-based networks, the part of the network to which the end-user is connected shall be placed in a star structure. It is not permitted to insert receiver connections into the connection between the star points.

#### 5.4.1   **Netherlands**

(Dutch Technical Regulations for CATV networks (Technische Voorschriften voor Centrale Antenne Inrichtingen, 3e uitgave), 21 December 1977, which are valid for CATV networks in accordance with Article 21 of the Dutch Telecommunications law (Stb. 1988, 520))

Replace by/add the following “minimum and maximum carrier levels” regulation:

FM sound mono:	80 dB(μV) <sub>max</sub>
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(measured in accordance with CISPR 16-1 [4] (quasi-peak measurement within 120 kHz bandwidth))

5.6.2 Netherlands

(Dutch Technical Regulations for CATV networks (Technische Voorschriften voor Centrale Antenne Inrichtingen, 3e uitgave), 21 December 1977, which are valid for CATV networks in accordance with Article 21 of the Dutch Telecommunications law (Stb. 1988, 520))

Add the group delay response curve valid for PAL with FM-FM sound (see Annex ZB, 5.4.1).

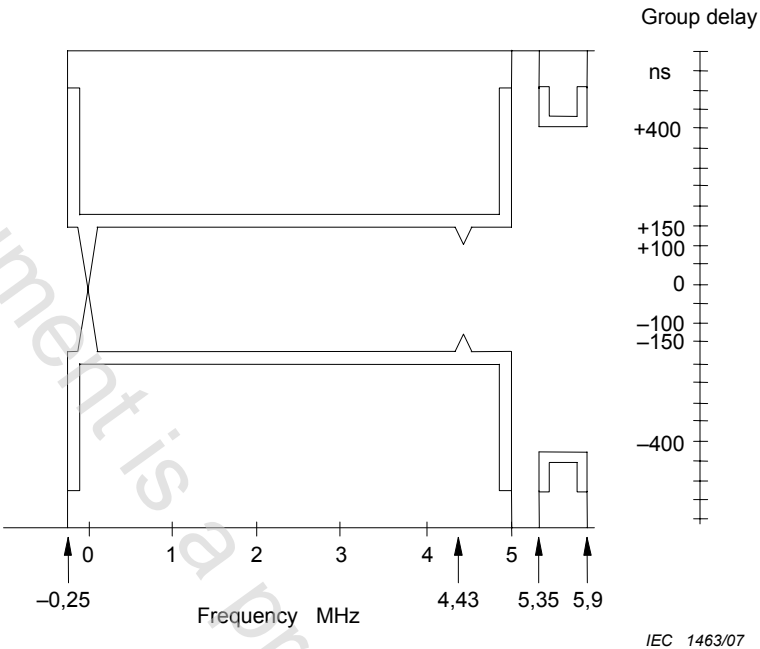


Figure ZB.1 – Mask group delay characteristic for PAL signals with FM-FM sound

5.9.1 Netherlands

(Dutch Technical Regulations for CATV networks (Technische Voorschriften voor Centrale Antenne Inrichtingen, 3e uitgave), 21 December 1977, which are valid for CATV networks in accordance with Article 21 of the Dutch Telecommunications law (Stb. 1988, 520))

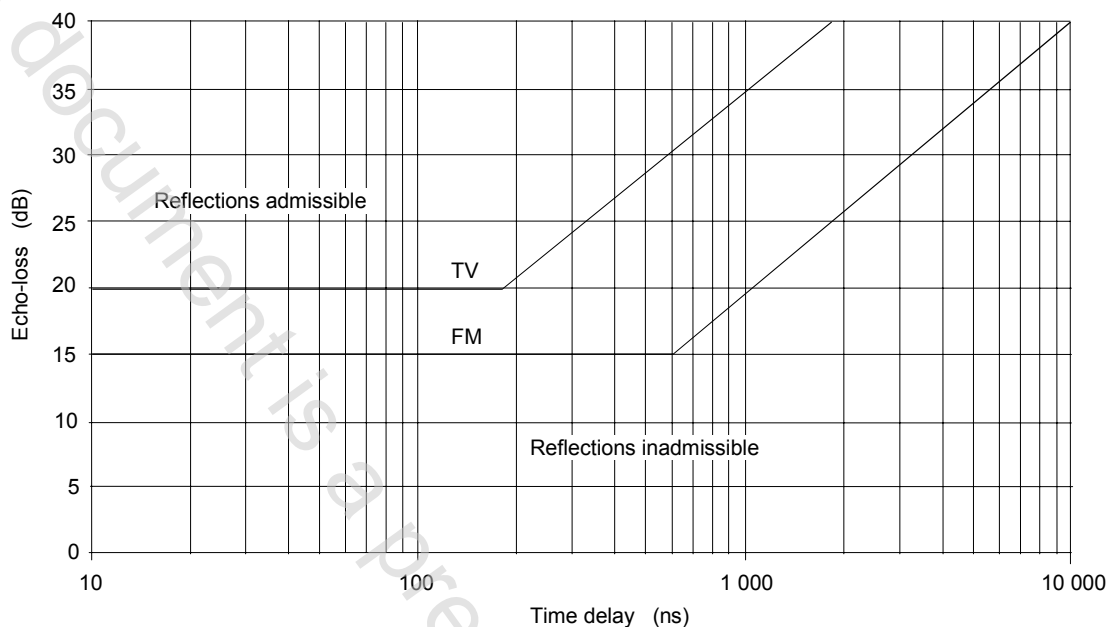
Replace by/add the following “single-frequency interference” regulation:

AM-VSB-PAL-signals:	$C/I \geq 60 \text{ dB}$	(measured in a bandwidth of 300 kHz)
For signals outside used TV channels:	$C/I \geq 40 \text{ dB}$	

### 5.10.2 Netherlands

(Dutch Technical Regulations for CATV networks (Technische Voorschriften voor Centrale Antenne Inrichtingen, 3e uitgave), 21 December 1977, which are valid for CATV networks in accordance with Article 21 of the Dutch Telecommunications law (Stb. 1988, 520))

Replace the requirements for “echoes in television channels, PAL-SECAM standards” by the “requirement for echo loss in relation to the time delay of the reflected signal for AM-PAL-TV and FM-radio” (Figure ZB.2).



IEC 1468

**Figure ZB.2 – Requirement for echo loss in relation to the time delay of the reflected signal**

### 5.12.1 Denmark

(Danish technical regulations for CATV-networks, which are applicable to those networks in accordance with national legislation act. nr; 277 of June 1995, given by the Ministry of Research)

Add the requirement for “decoding margin” being “the decoding margin must be 40 %, when the margin is a minimum of 70 % at the receiving antenna”.

### 5.14.3 Netherlands

(Dutch Technical Regulations for CATV networks (Technische Voorschriften voor Centrale Antenne Inrichtingen, 3e uitgave), 21 December 1977, which are valid for CATV networks in accordance with Article 21 of the Dutch Telecommunications law (Stb. 1988, 520))

Add the requirement for “adjacent channel spacing” by  $\geq 400$  kHz.

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## INTRODUCTION

Standards of the IEC 60728 series 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.

This includes

- CATV<sup>1</sup>-networks;
- MATV-networks and SMATV-networks;
- individual receiving networks;

and all kinds of equipment, systems and installations installed in such networks.

The extent of this standardization work is from the antennas and/or special signal source inputs to the headend or other interface points to the network up to the terminal input.

The standardization of any user terminals (i.e., tuners, receivers, decoders, multimedia terminals, etc.) as well as of any coaxial, balanced and optical cables and accessories thereof is excluded.

The reception of television signals inside a building requires an outdoor antenna and a distribution network to convey the signal to the TV receivers.

The installation of an outdoor antenna for each TV receiver should be avoided for several obvious technical, economical and practical reasons.

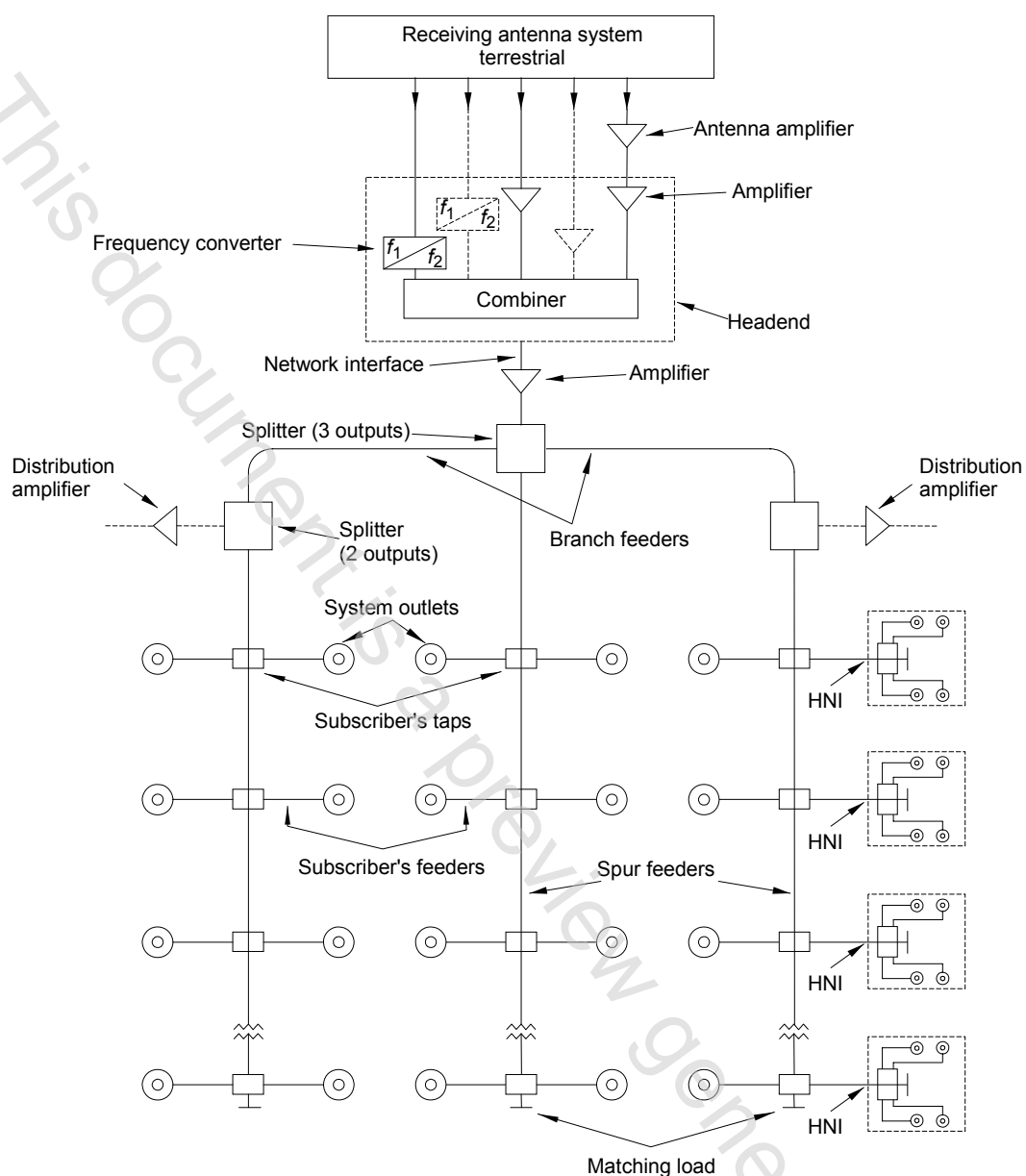
In a building divided into apartment blocks, the installation of a master antenna television system for terrestrial (MATV) and/or satellite (SMATV) reception, as shown in Figures 1, 2, 3, 4 and 5, describing as an example the various parts of the system is usual. Most of the terms used in the IEC 60728 series can be referred to these figures.

When signals to be conveyed to the TV receivers are picked up far away, for geographical reasons, and the number of users (subscribers) is very high, the installation of a cable network using coaxial cables and/or fibre optic cables is used, as indicated in Figure 4, describing as an example the various parts of the system.

A system model of a cable network is shown in Figure 5, where the main parts of the systems are indicated, as defined in Clause 3.

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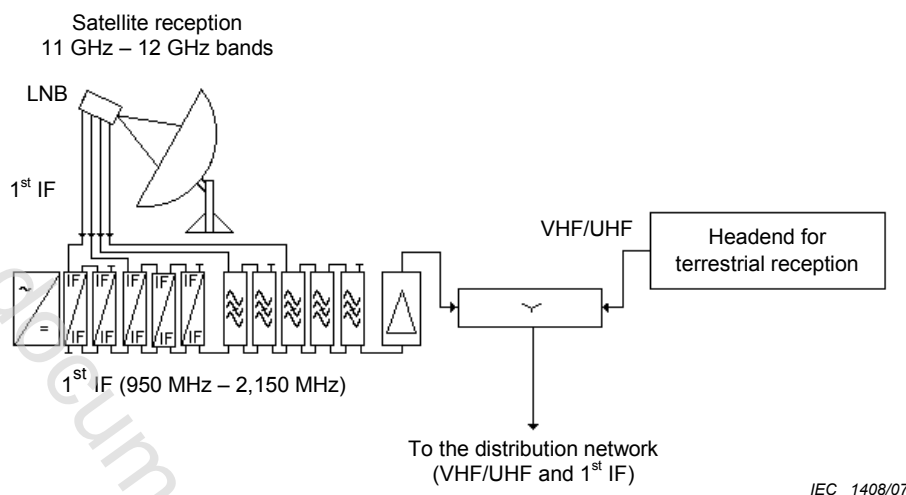
<sup>1</sup> This word encompasses the HFC networks used nowadays to provide telecommunications services, voice, data, audio and video both broadcast and narrowcast.



IEC 1407/07

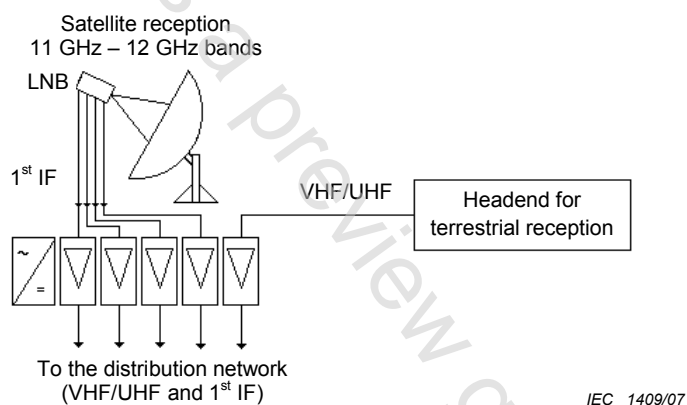
Some apartments (dwelling units) are served with a home network (HN), interfaced to the MATV system by the Home Network Interface (HNI).

**Figure 1 – Example of a master antenna television system (MATV) for terrestrial reception**

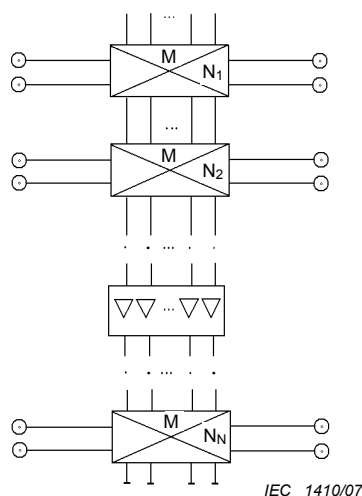


NOTE Distribution at the 1<sup>st</sup> IF on the same cable as terrestrial VHF/UHF channels.

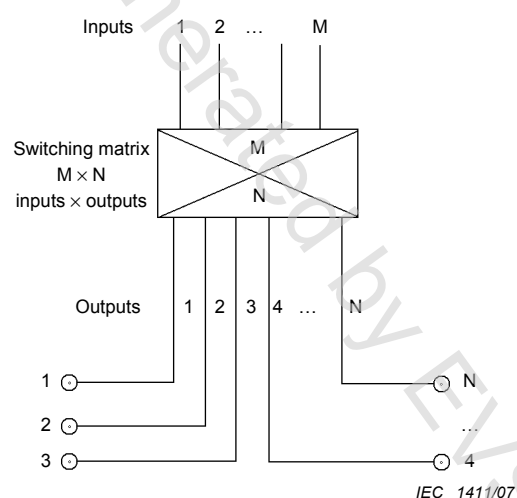
**Figure 2 – Example of the headend of a master antenna television system for satellite (SMATV) reception**



**Figure 3a – Headend for terrestrial and satellite reception using multicable distribution**



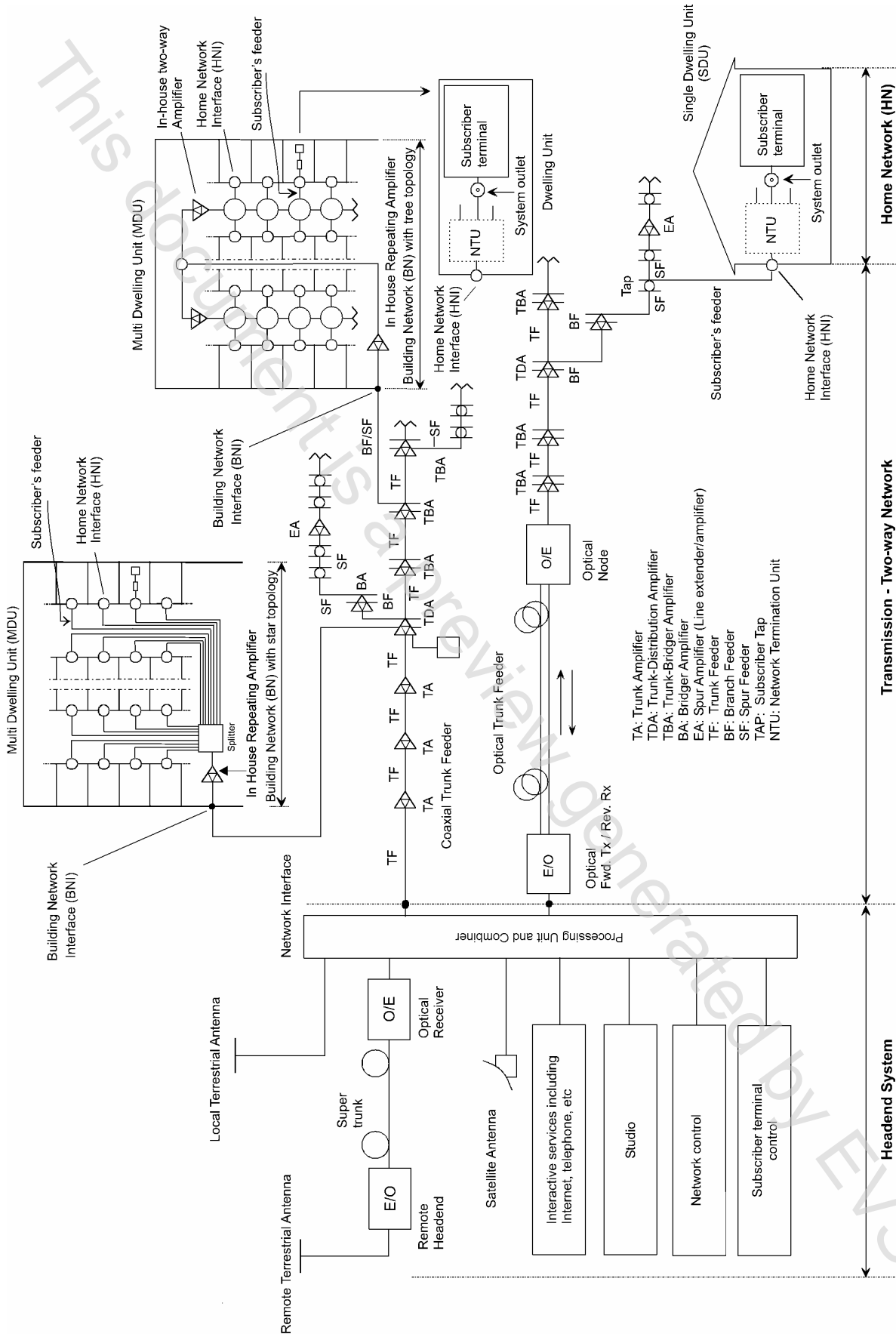
**Figure 3b – Distribution with switching matrix at each flat**



**Figure 3c – Distribution with switching matrix: star configuration**

NOTE Distribution at the 1<sup>st</sup> IF using multicable and multi-switch technique.

**Figure 3 – Example of a master antenna television system for terrestrial and satellite (SMATV) reception**



IEC 1412/07

Figure 4 – Example of a cabled distribution system for television and sound signals

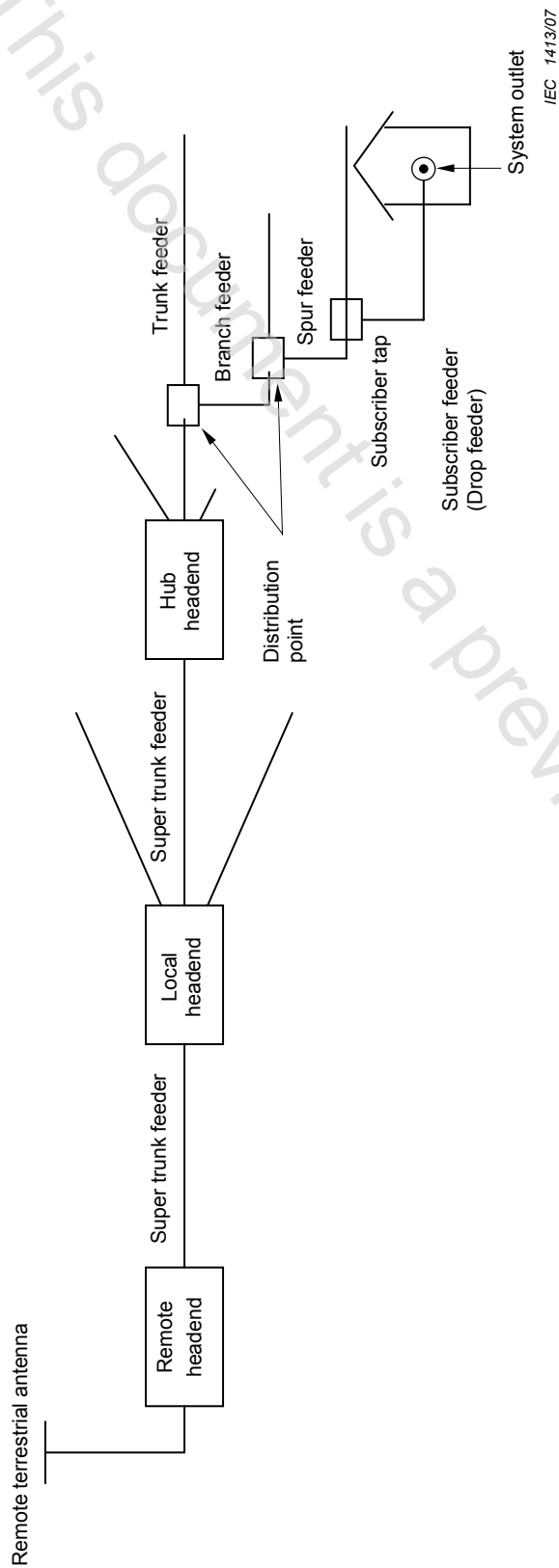


Figure 5 – System model for downstream direction of a cable network for television and sound signals (CATV)

## **CABLE NETWORKS FOR TELEVISION SIGNALS, SOUND SIGNALS AND INTERACTIVE SERVICES –**

### **Part 1: System performance of forward paths**

#### **1 Scope**

This part of IEC 60728 is applicable to any cable network (including individual receiving systems) having in the forward path a coaxial cable output and primarily intended for television and sound signals operating between about 30 MHz and 3 000 MHz.

This standard specifies the basic methods of measurement of the operational characteristics of cable network having coaxial cable outputs in order to assess the performance of these systems and their performance limits.

All requirements refer to the performance limits, which shall be obtained between the input(s) to the headend or headends and any system outlet when terminated in a resistance equal to the nominal load impedance of the system, unless otherwise specified. Where system outlets are not used, the above applies at the subscriber's end of the subscriber's feeder. Also the requirements which are obtained between the input(s) to the headend or headends and any home network interface (HNI) are given.

NOTE 1 Methods of measurement described in this standard are considered as basic. However, any equivalent method that ensures at least the same accuracy may be used.

NOTE 2 If the system operator wishes to subdivide the system into a number of parts or wishes to use different transmission media (for example, coaxial cabling, balanced cabling, optical cabling), the accumulation of degradations should not exceed the figures given in this standard.

NOTE 3 System performance requirements of return paths as well as specific methods of measurement for the use of the return paths in cable networks are described in IEC 60728-10.

Clause 5 defines the system performance limits which will, with an unimpaired input, (headend input signal), produce picture and sound signals (at system outlets) where the impairment to any single parameter will be not worse, in normal operating conditions for any analogue channel, than Grade four on the five-grade impairment scale contained in ITU-BT 500-10. For digitally modulated signals, the quality requirement is a quasi-error-free (QEF) reception.

Appropriate performance requirements for the signals at the receiving antennas site are given in Clause 6 in order to provide at the input of the headend of the cable network both analogue and digital television signals with suitable quality.

Clause 7 is applicable to home networks (including those of individual receiving systems) using coaxial cables, balanced cables or optical cables and primarily intended for television signals, sound signals and interactive services, operating between about 30 MHz and 3 000 MHz.

This clause, considering the basic operational characteristics of a home network, specifies the requirements which shall be obtained at the home network interface (HNI) taking into account the performance requirements given at the system outlet or at the terminal input.



## 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.

IEC 60050-705, *International Electrotechnical Vocabulary (IEV) – Chapter 705: Radio wave propagation*

IEC 60050-712, *International Electrotechnical Vocabulary (IEV) – Chapter 712: Antennas*

IEC 60050-713, *International Electrotechnical Vocabulary (IEV) – Part 713: Radiocommunications: transmitters, receivers, networks and operation*

IEC 60050-725, *International Electrotechnical Vocabulary (IEV) – Chapter 725: Space radiocommunications*

IEC 60617, *Graphical symbols for diagrams*

IEC 60728-2, *Cabled distribution systems for television and sound signals – Part 2: Electromagnetic compatibility for equipment*

IEC 60728-3, *Cable networks for television signals, sound signals and interactive services – Part 3: Active wideband equipment for coaxial cable networks*

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

IEC 60728-10, *Cable networks for television signals, sound signals and interactive services – Part 10: System performance of return paths*

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

IEC 60728-12, *Cabled distribution systems for television and sound signals – Part 12: Electromagnetic compatibility of systems*

IEC 60966-2-4, *Radio frequency and coaxial cable assemblies – Part 2-4: Detail specification for cable assemblies for radio and TV receivers – Frequency range 0 to 3 000 MHz, IEC 61169-2 connectors*

IEC 60966-2-5, *Radio frequency and coaxial cable assemblies – Part 2-5: Detail specification for cable assemblies for radio and TV receivers – Frequency range 0 to 1 000 MHz, IEC 61169-2 connectors*

IEC 60966-2-6, *Radio frequency and coaxial cable assemblies – Part 2-6: Detail specification for cable assemblies for radio and TV receivers – Frequency range 0 to 3 000 MHz, IEC 61169-24 connectors*

ISO/IEC 13818-1, *Information technology – Generic coding of moving pictures and associated audio information: Systems*

ISO/IEC 13818-2, *Information technology – Generic coding of moving pictures and associated audio information: Video*

ISO/IEC 13818-3, *Information technology – Generic coding of moving pictures and associated audio information – Part 3: Audio*

ISO/IEC 13818-4, *Information technology – Generic coding of moving pictures and associated audio information – Part 4: Conformance testing*

ISO/IEC 14496-1, *Information technology – Coding of audio-visual objects – Part 1: Systems*

ISO/IEC 14496-2, *Information technology – Coding of audio-visual objects – Part 2: Visual*

ISO/IEC 14496-3, *Information technology – Coding of audio-visual objects – Part 3: Audio*

ISO/IEC 14496-4, *Information technology – Coding of audio-visual objects – Part 4: Conformance testing*

ITU-R Recommendation BS.412-9, *Planning standards for terrestrial FM sound broadcasting at VHF*

ITU-R Recommendation BT.417-4, *Minimum field strengths for which protection may be sought in planning an analogue terrestrial television service*

ITU-R Recommendation BT.470-7, *Conventional analogue television systems*

ITU-R Recommendation BT.500-11, *Methodology for the subjective assessment of the quality of television pictures*

ITU-T Recommendation J.61, *Transmission performance of television circuits designed for use in international connections*

ITU-T Recommendation J.63, *Insertion of test signals in the field-blanking interval of monochrome and colour television signals*

EN 50117-2-4, *Coaxial cables – Part 2-4: Sectional specification for cables used in cabled distribution networks - Indoor drop cables for systems operating at 5 MHz - 3 000 MHz*

EN 50248, *Characteristics of DAB receivers*

ETSI EN 300 421, *Digital Video Broadcasting (DVB) – Framing structure, channel coding and modulation for 11/12 GHz satellite services*

ETSI EN 300 429, *Digital Video Broadcasting (DVB) – Framing structure, channel coding and modulation for cable systems*

ETSI EN 300 468, *Digital Video Broadcasting (DVB) – Specification for Service Information (SI) in DVB systems*

ETSI EN 300 473, *Digital Video Broadcasting (DVB) – Satellite Master Antenna Television (SMATV) distribution systems*

ETSI EN 300 744, *Digital Video Broadcasting (DVB) – Framing structure, channel coding and modulation for digital terrestrial television*

ETSI EN 300 748, *Digital Video Broadcasting (DVB) – Multipoint Video Distribution Systems (MVDS) at 10 GHz and above*

ETSI EN 300 749, *Digital Video Broadcasting (DVB) – Microwave Multipoint Distribution Systems (MMDS) below 10 GHz*

ETSI EN 302 307 *Digital Video Broadcasting (DVB) – Second generation framing structure, channel coding and modulation systems for Broadcasting, Interactive Services, News Gathering and other broadband satellite applications*

ETSI TR 101 211, *Digital Video Broadcasting (DVB) – Guidelines on implementation and usage of Service Information (SI)*

ETSI ETS 300 784, *Satellite Earth Stations and Systems (SES) – TeleVision Receive-Only (TVRO) satellite earth stations operating in the 11/12 GHz frequency bands*

ETSI TR 101 290, *Digital Video Broadcasting (DVB) – Measurement guidelines for DVB systems*

### 3 Terms, definitions, symbols and abbreviations

#### 3.1 Terms and definitions

For the purpose of this standard, the terms and definitions given in IEC 60050-705, IEC 60050-712 and IEC 60050-725, apply.

NOTE The most important definitions are repeated below.

##### 3.1.1

##### **active antenna**

antenna incorporating active devices

[IEV 712-03-29].

##### 3.1.2

##### **active home network**

home network that uses active equipment (for example, amplifiers) in addition to passive equipment like splitters, taps, system outlets, cables and connectors up to the coaxial RF interface (input and/or output) of the terminal equipment for distributing and combining RF signals

##### 3.1.3

##### **antenna**

that part of a radio transmitting or receiving system which is designed to provide the required coupling between a transmitter or a receiver and the medium in which the radio wave propagates

[IEV 712-01-01]

NOTE 1 In practice, the terminals of the antenna or the points to be considered as the interface between the antenna and the transmitter or receiver should be specified.

NOTE 2 If the transmitter or receiver is connected to its antenna by a feeder line, the antenna may be considered to be a transducer between the guided radio waves of the feeder line and the radiated waves in space.

##### 3.1.4

##### **antenna amplifier**

amplifier (often a low-noise type) associated with an antenna

##### 3.1.5

##### **attenuation**

ratio of the input power to the output power of an equipment or system, expressed in decibels