IEC 60728-1-1

Edition 2.0 2014-03

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Cable networks for television signals, sound signals and interactive services – Part 1-1: RF cabling for two way home networks

Réseaux de distribution par câbles pour signaux de télévision, signaux de radiodiffusion sonore et services interactifs –
Partie 1-1: Câblage RF pour réseaux domestiques bidirectionnels

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

Part 1-1: RF cabling for two way home networks

FOREWORD

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International Standard IEC 60728-1-1 has been prepared by technical area 5: Cable networks for television signals, sound signals and interactive services, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

This second edition cancels and replaces the first edition published in 2010, and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- update of performance requirements in Clause 5 to include those for DVB-T2 signals.

This International Standard is to be used in conjunction with IEC 60728-1:2014.

The text of this standard is based on the following documents:

FDIS	Report on voting
100/2249/FDIS	100/2285/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 60728 series, under the general title *Cable networks for television signals, sound signals and interactive services*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

Standards and deliverables of IEC 60728 series deal with cable networks including equipment and associated methods of measurement for headend reception, processing and distribution of television and sound signals and for processing, interfacing and transmitting all kinds of data signals for interactive services using all applicable transmission media. These signals are typically transmitted in networks by frequency-multiplexing techniques.

This includes for instance

- regional and local broadband cable networks,
- extended satellite and terrestrial television distribution systems,
- individual satellite and terrestrial television receiving systems,

and all kinds of equipment, systems and installations used in such cable networks, distribution and receiving systems.

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 of the customer premises equipment.

The standardization work will consider coexistence with users of the RF spectrum in wired and wireless transmission systems.

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.

This part of the IEC 60728 deals with the requirements and implementation guidelines for a home network that can be realised with different techniques. The following types of home networks (HN) are possible:

- passive coaxial home network;
- active coaxial home network;
- different home network types.

Figure 1 shows typical situations that are possible when considering RF home networks.

The RF home network can be realised using coaxial cables, balanced cables, optical cables or radio links.

Clause 5 defines the performance limits measured at system outlet or terminal input for an unimpaired (ideal) test signal applied at the HNI. Under normal operating conditions for any analogue channel and meeting these limits, the cumulative effect of the impairment of any single parameter at the HNI and that, due to the home network, will produce picture and sound signals not worse than grade four on the five-grade impairment scale contained in ITU-R BT.500. These requirements are given in IEC 60728-1-2. For digitally modulated signals the quality requirement is a QEF (Quasi Error Free) reception.

This standard describes the physical layer connection for home networks. Description of protocols required for Layer 2 and higher layers is out of the scope of this standard. Logical connections between devices within the home network are therefore not always guaranteed.

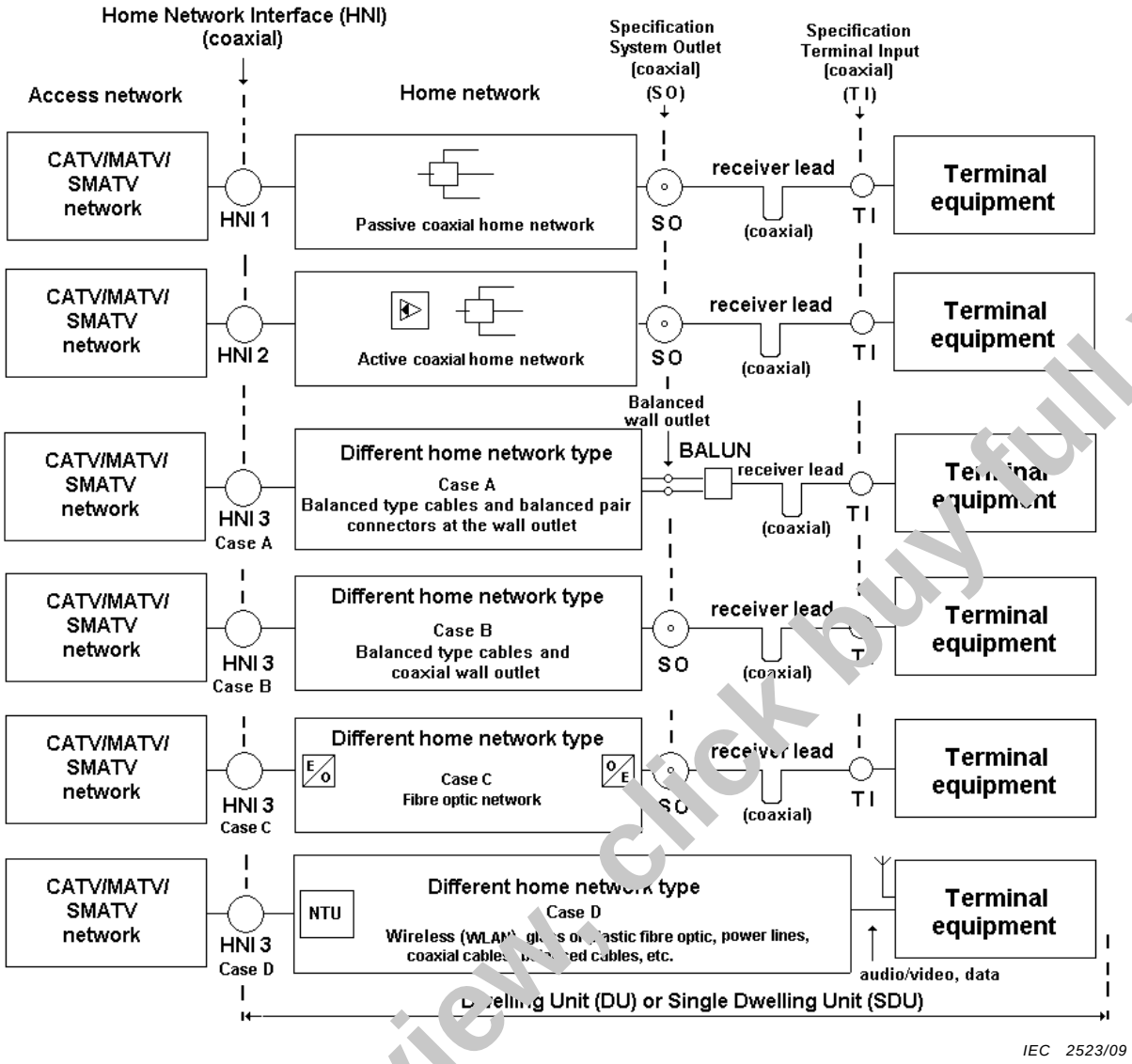

Figure 1 – Examples of RF home network types

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

Part 1-1: RF cabling for two way home networks

1 Scope

This part of IEC 60728 provides the requirements and describes the implementation guidelines of RF cabling for two-way home networks. This standard is applicable to any home network that distributes signals provided by CATV/MATV/SMATV cable networks (including individual receiving systems) having a coaxial cable output. This standard also applies to home networks where some part of the distribution network uses wireless links, for example instead of the receiver cord.

This part of IEC 60728 is therefore applicable to RF cabling for two-way home networks with wired cords or wireless links inside a room and primarily intended for television and sound signals operating between about 5 MHz and 3 000 MHz. The frequency range is extended to 6 000 MHz for distribution techniques that replace wired cords with a wireless two-way communication inside a room (or a small number of adjacent rooms) that uses the 5 GHz to 6 GHz band.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 – Chapter 705: Radio wave propagation*

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

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

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

IEC 60728-1-2, *Cable networks for television signals, sound signals and interactive services – Part 1-2: Performance requirements for signals delivered at system outlet in operation*

IEC 60728-3:2010, *Cable networks for television signals, sound signals and interactive services – Part 3: Active wideband equipment for coaxial cable networks*

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

IEC 60966 (all parts), *Radio frequency and coaxial cable assemblies*

IEC 60966-2 (all parts), *Radio frequency and coaxial cable assemblies – Part 2: Detail specification for cable assemblies for radio and TV receivers*