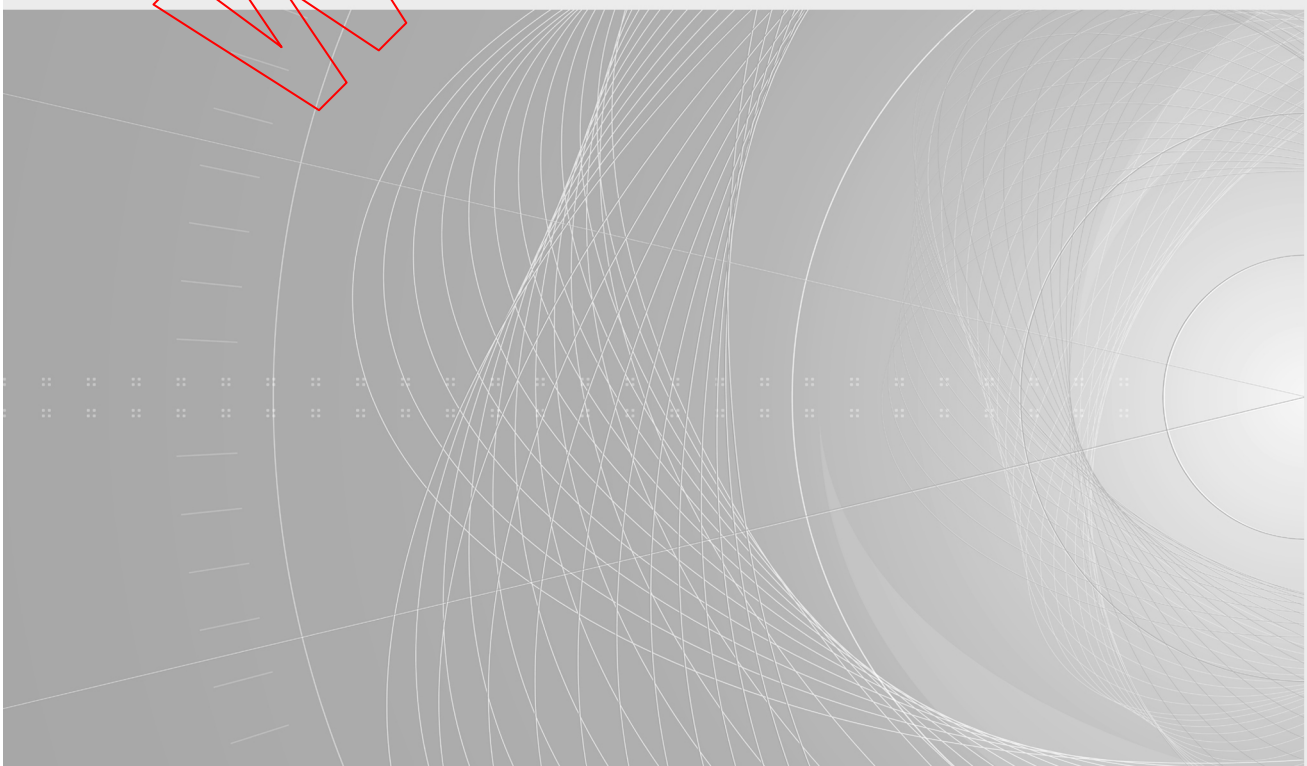
IEC 60728-1

Edition 4.0 2007-09

INTERNATIONAL STANDARD

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



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

Part 1: System performance of forward paths

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 60728-1 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 fourth edition cancels and replaces the third edition published in 2001, of which it constitutes a technical revision.

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

- redrafting of introduction and scope to reflect the current scope of IEC TC 100/TA 5;
- redrafting of measurement procedure for bit error ratio (BER);
- updating of performance requirements in Clause 5;
- inclusion of new Clause 6;
- inclusion of new Clause 7;

- inclusion of new Annex K.

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

FDIS	Report on voting
100/1242/FDIS	100/1274/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.

The list of all the 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.

For the differences in some countries, see Annex J.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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.

A bilingual version of this publication may be issued at a later date.

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[1]-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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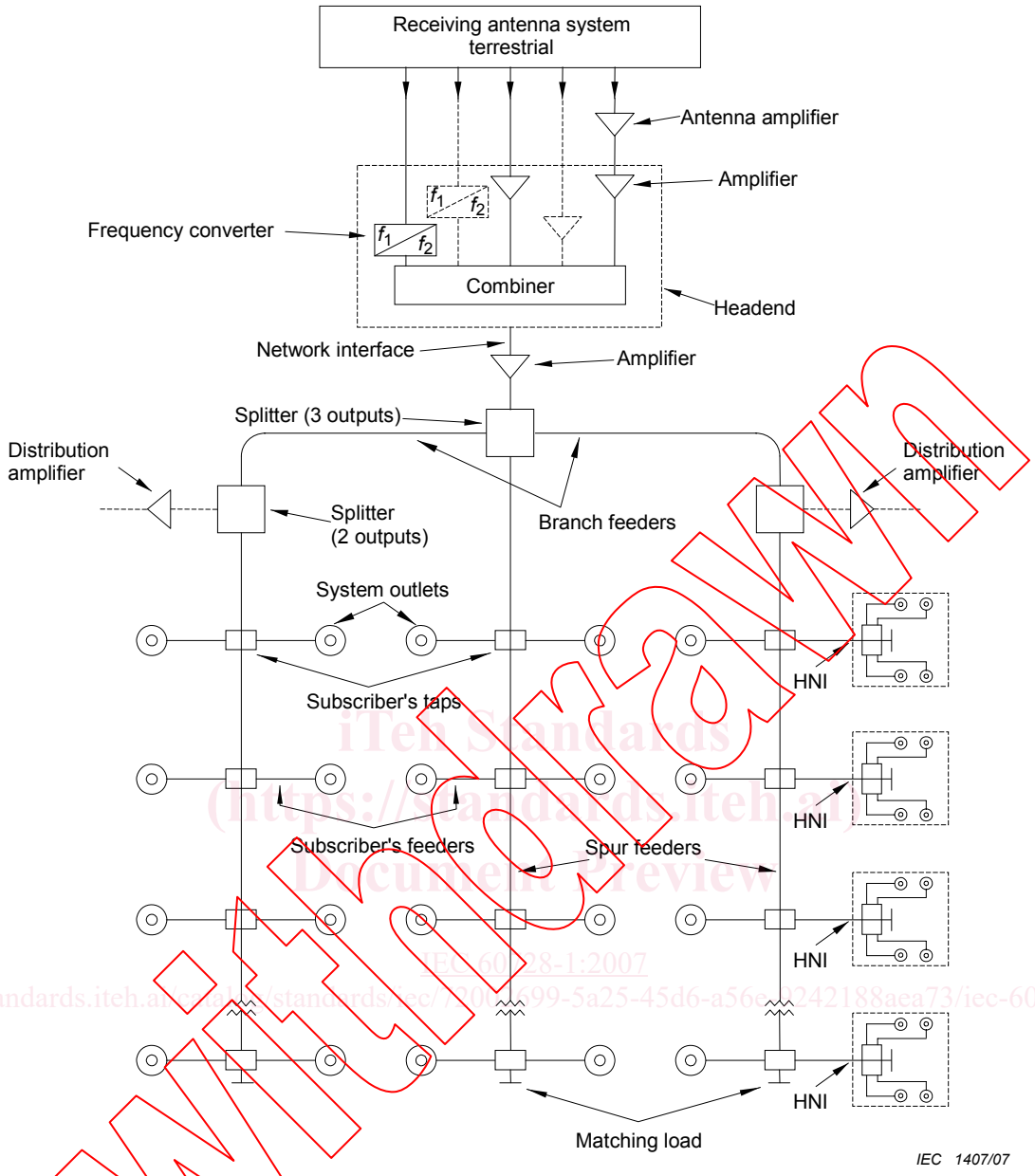
[1] This word encompasses the HFC networks used nowadays to provide telecommunications services, voice, data, audio and video both broadcast and narrowcast.



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