

**Cable networks for television signals, sound signals and interactive services - Part 7-3: Hybrid fibre coax outside plant status monitoring - Power supply to transponder interface bus (PSTIB) specification**

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 60728-7-3:2005 sisaldab Euroopa standardi EN 60728-7-3:2005 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 13.06.2005 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 02.02.2005.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 60728-7-3:2005 consists of the English text of the European standard EN 60728-7-3:2005.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 13.06.2005 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 02.02.2005.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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ICS 33.040, 33.100.20, 33.160

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**Cable networks for television signals,  
sound signals and interactive services**  
**Part 7-3: Hybrid Fibre Coax Outside Plant Status Monitoring –  
Power supply to Transponder Interface Bus (PSTIB) Specification**  
(IEC 60728-7-3:2003)

Réseaux de distribution par câbles  
pour signaux de télévision, signaux  
de radiodiffusion sonore et services  
interactifs  
Partie 7-3: Surveillance de l'état  
des installations extérieures des réseaux  
hybrides à fibre optique et câble coaxial –  
Spécification de l'alimentation du bus  
d'interface du répéteur  
(CEI 60728-7-3:2003)

Kabelnetze für Fernsehsignale,  
Tonsignale und interaktive Dienste  
Teil 7-3: Zustandsüberwachung  
Hybrid-Faser-Koax-Netze (HFC) –  
Festlegung Schnittstellenbus  
von Fernspeise-Stromversorgung  
zu Transponder (PSTIB)  
(IEC 60728-7-3:2003)

This European Standard was approved by CENELEC on 2004-12-01. 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.

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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 the International Standard IEC 60728-7-3:2003, 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 formal vote and was approved by CENELEC as EN 60728-7-3 on 2004-12-01 without any modification.

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) 2005-12-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2007-12-01

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 60728-7-3:2003 was approved by CENELEC as a European Standard without any modification.

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
EIA 485	1991	Electrical characteristics of generators and receivers for use in balanced digital multipoint systems	-	-

# INTERNATIONAL STANDARD

**IEC**  
**60728-7-3**

First edition  
2003-10

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**Cable networks for television signals,  
sound signals and interactive services –**

**Part 7-3:  
Hybrid Fibre Coax Outside Plant  
Status Monitoring –  
Power supply to Transponder Interface  
Bus (PSTIB) Specification**



Reference number  
IEC 60728-7-3:2003(E)

## Publication numbering

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# INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

### Part 7-3: Hybrid Fibre Coax Outside Plant Status Monitoring – Power Supply to Transponder Interface Bus (PSTIB) specification

#### FOREWORD

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International Standard IEC 60728-7-3 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 standard was submitted to the national committees for voting under the Fast Track Procedure as the following documents:

CDV	Report on voting
100/578/CDV	100/685/RVC

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 committee has decided that the contents of this publication will remain unchanged until 2006. At this date, the publication will be

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

The following differences exist in some countries:

The Japanese *de facto* standard (NCTEA S-006) concerning requirements for the HFC outside plant management, which was published in 1995, has already been available in Japan. The purpose of this standard is to support the design and implementation of interoperable management systems for HFC cable networks used in Japan.

## INTRODUCTION

Standards of the IEC 60728 series deal with cable networks for television signals, sound signals and interactive services including equipment, systems and installations for

- head-end reception, processing and distribution of television and sound signals and their associated data signals, and
- processing, interfacing and transmitting all kinds of signals for interactive services

using all applicable transmission media.

All kinds of networks like

- CATV-networks,
- MATV-networks and SMATV-networks,
- individual receiving networks

and all kinds of equipment, systems and installations installed in such networks, are within this scope.

The extent of this standardization work is from the antennas, special signal source inputs to the head-end or other interface points to the network up to the system outlet or the terminal input, where no system outlet exists.

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

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

### Part 7-3: Hybrid Fibre Coax Outside Plant Status Monitoring – Power Supply to Transponder Interface Bus (PSTIB) specification

#### 1 Scope

This part of IEC 60728 specifies requirements for the Hybrid Fibre Coax (HFC) Outside Plant (OSP) Power Supplies (PS). This standard is part of a series developed to support the design and implementation of interoperable management systems for evolving HFC cable networks. The purpose of the standards is to support the design and implementation of interoperable management systems for evolving HFC cable networks. The Power Supply to Transponder Interface Bus (PSTIB) specification describes the physical (PHY) interface and related messaging and protocols implemented at the Data Link Layer (DLL), layers 1 and 2 respectively in the 7-layer ISO-OSI reference model, that support communications between compliant transponders and the managed OSP power supplies and other related power equipment to which they interface.

This standard describes the PSTIB PHY and DLL layer requirements and protocols that must be implemented to support reliable communications between all *type 2* and *type 3* compliant OSP transponders on the HFC plant and managed OSP power supplies and related hardware. Any exceptions to compliance with this standard will be specifically noted as necessary. Refer to Table 1 for a full definition of the type classifications.

Transponder type classifications referenced within the HMS series of standards are defined in Table 1.

**Table 1 – Transponder type classifications**

Type	Description	Application
<i>Type 0</i>	Refers to legacy transponder equipment which is incapable of supporting the specifications	<ul style="list-style-type: none"> <li>This transponder interfaces with legacy network equipment through proprietary means.</li> <li>This transponder could be managed through the same management applications as the other types through proxies or other means at the head-end</li> </ul>
<i>Type 1</i>	Refers to stand-alone transponder equipment (legacy or new), which can be upgraded to support the specifications	<ul style="list-style-type: none"> <li>This transponder interfaces with legacy network equipment through proprietary means.</li> <li>Type 1 is a standards-compliant transponder (either manufactured to the standard or upgraded) that connects to legacy network equipment via a proprietary interface</li> </ul>
<i>Type 2</i>	Refers to a stand-alone, compliant transponder	<ul style="list-style-type: none"> <li>This transponder interfaces with network equipment designed to support the electrical and physical specifications defined in the standards.</li> <li>It can be factory or field-installed.</li> <li>Its RF connection is independent of the monitored NE</li> </ul>
<i>Type 3</i>	Refers to a stand-alone or embedded, compliant transponder	<ul style="list-style-type: none"> <li>This transponder interfaces with network equipment designed to support the electrical specifications defined in the standards.</li> <li>It may or may not support the physical specifications defined in the standards.</li> <li>It can be factory-installed. It may or may not be field-installed.</li> <li>Its RF connection is through the monitored NE</li> </ul>

## 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.

EIA RS-485, Electrical Characteristics of Generators and Receivers for Use in Balanced Digital Multipoint Systems

## 3 Terms, definitions and abbreviations

### 3.1 Terms and definitions

For the purposes of this document, the following definitions apply.

#### 3.2

##### **data link layer (DLL)**

layer 2 in the Open System Interconnection (OSI) architecture; the layer that provides services to transfer data over the physical transmission link between open systems

#### 3.3

##### **network element (NE)**

an active element in the outside plant (OSP) that is capable of receiving commands from a head-end element (HE) in the head-end and, as necessary, providing status information and alarms back to the HE

#### 3.4

##### **open system interconnection (OSI)**

framework of International Organization for Standardization (ISO) standards for communication between multi-vendor systems that organizes the communication process into seven different categories that are placed in a layered sequence based on the relationship to the user. Each layer uses the layer immediately below it and provides services to the layer above. Layers 7 through 4 deal with end-to-end communication between the message source and destination, and layers 3 through 1 deal with network functions

#### 3.5

##### **physical (PHY) layer**

layer 1 in the Open System Interconnection (OSI) architecture; the layer that provides services to transmit bits or groups of bits over a transmission link between open systems and which entails electrical, mechanical and handshaking procedures

#### 3.6

##### **transponder**

device that interfaces to outside plant (OSP) NEs and relays status and alarm information to the HE. It can interface with an active NE via an arrangement of parallel analogue, parallel digital and serial ports

### 3.7 Abbreviations

DLL	Data Link Layer
EMS	Element Management System
Gnd	Grund
HE	Head-end Element
HFC	Hybrid Fibre Coax
ISO	International Organization for Standardization