INTERNATIONAL STANDARD

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

Part 7-2: Hybrid Fibre Coax Outside Plant Status Monitoring – Media access Control (MAC) Layer Specification

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International Standard IEC 60728-7-2 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 IEC Fast Track Procedure as the following documents:

CDV	Report on voting
100/577/CDV	100/684/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- withdrawn;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 any coaxial and optical cables and accessories therefore is excluded.

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

Part 7-2: Hybrid Fibre Coax Outside Plant status monitoring – Media Access Control (MAC) layer specification

1 Scope

This part of IEC 60728 specifies requirements for The Hybrid Fibre Coax (HFC) Outside Plant (OSP) Media Access Control (MAC) Layer. This standard is part of the series developed to support the design and implementation of interoperable management systems for evolving HFC cable networks. The HMS Media Access Control (MAC) layer specification describes the messaging and protocols implemented at the Data Link Layer (DLL), layer 2 in the 7 layer ISO-OSI reference model, that support reliable and efficient communications between HMS compliant transponders interfacing to managed OSP network elements (NEs) and a centralized head-end element (HE).

This standard describes the MAC layer protocols that must be implemented between all *Type 2* and *Type 3* compliant OSP transponders on the HFC plant and the controlling equipment in the head-end to support bandwidth management and reliable communications. Any exceptions to compliance with this standard will be specifically noted herein 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
Type 0	Refers to legacy transponder equipment, which is incapable of supporting the specifications	This transponder interfaces with legacy network equipment through proprietary means. This transponder could be managed through the same management applications as the other types through proxies or other means at the head-end.
Type 1	Refers to stand-alone transponder equipment (legacy or new), which can be upgraded to support the specifications	This transponder interfaces with legacy network equipment through proprietary means. Type 1 is a standards-compliant transponder (either manufactured to the standard or upgraded) that connects to legacy network equipment via a proprietary interface.
Type 2	Refers to a stand-alone, compliant transponder	This transponder interfaces with network equipment designed to support the electrical and physical specifications defined in the standards. It can be factory or field-installed. Its RF connection is independent of the monitored NE.
Type 3	Refers to a stand-alone or embedded, compliant transponder.	This transponder interfaces with network equipment designed to support the electrical specifications defined in the standards. It may or may not support the physical specifications defined in the standards. It can be factory-installed. It may or may not be field-installed. Its RF connection is through the monitored NE.

2 Normative references

None.