

# INTERNATIONAL STANDARD

**Multimedia systems – Common communication protocol for inter-connectivity  
on heterogeneous networks**



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**Multimedia systems – Common communication protocol for inter-connectivity  
on heterogeneous networks**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MULTIMEDIA SYSTEMS –  
COMMON COMMUNICATION PROTOCOL  
FOR INTER-CONNECTIVITY ON HETEROGENEOUS NETWORKS**

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International Standard IEC 62295 has been prepared by technical area 8: Multimedia home server systems, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

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

|              |                  |
|--------------|------------------|
| CDV          | Report on voting |
| 100/1200/CDV | 100/1283/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 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,
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## INTRODUCTION

Numerous wired and wireless home network technologies of various types have been developed and are in use today. However, since these technologies have been developed for specific functions such as control, A/V and data services, interoperability is not guaranteed among products employing these technologies. Hence, users who wish to implement the home network environment either purchase devices that are based on a single technology for interoperability or install independent, non-compatible networks in their home.

To solve these problems, home network businesses and service providers have taken into account and developed a number of specific technologies in order to allow interoperability among home network technologies. However, most of these technologies are local and offer interoperability between a limited range of devices and give rise to new problems caused by complexity and diversity in technologies of different companies.

In order to incorporate such complex and diverse technologies, there is a need to develop a new convergence technology that can integrate not only current technologies but also those expected to surface in the future.

The needs for the new convergence technology are the following:

- provide interoperability and interconnectivity among heterogeneous networks through a specific convergence layer;
- provide expandability for applications in not only current network technologies, but also new technologies to be developed in the future;
- are applicable in small devices with low processing capabilities by providing protocols such as simple signaling in the convergence layer;
- available at a low cost and simple to implement on a device;
- able to provide diverse home network services (or applications).

## **MULTIMEDIA SYSTEMS – COMMON COMMUNICATION PROTOCOL FOR INTER-CONNECTIVITY ON HETEROGENEOUS NETWORKS**

### **1 Scope and object**

This International Standard specifies the common communication protocol (CCP) layer that is capable of providing interoperability and interconnectivity between heterogeneous network technologies, as well as the basic data transmission scheme between devices linked to heterogeneous networks through the CCP layer. The standard also specifies the packet structure in the CCP layer and the common addressing scheme that can be understood among heterogeneous devices. Furthermore, there are specifications regarding protocols capable of providing diverse home network applications through the CCP layer such as the home network management protocol (HNMP), universal home control protocol (UHCP), home multimedia service protocol (HMSP) and home data service protocol (HDSP).

NOTE HNMP is the overall home network management protocol that detects or registers devices. UHCP controls and monitors devices from remote locations. HMSP is the A/V protocol for home entertainment services. HDSP deals with data and messaging services.

This standard is to be applied to systems with network capabilities and those that constitute home networks such as electronic appliances, A/V components, control devices, network terminals and home servers. Moreover, this standard is applicable to a home network consisting of a single home server.

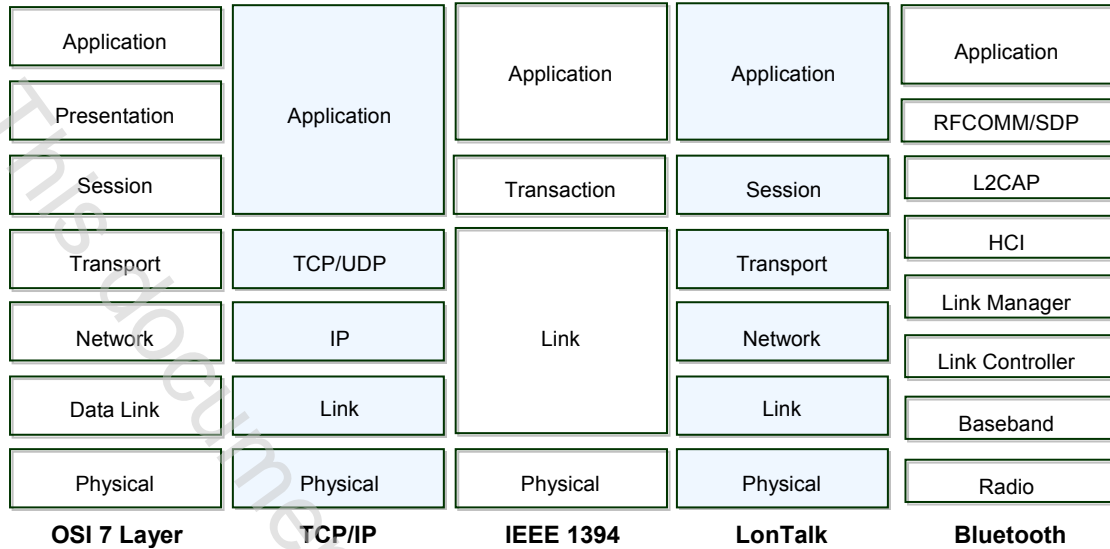
This International Standard gives

- a definition of the CCP layer,
- a data transmission scheme in the CCP layer,
- a CCP packet structure,
- a CCP addressing scheme,
- a home network management protocol (HNMP),
- a universal home control protocol (UHCP),
- a home data service protocol (HDSP),
- requirements of home multimedia service protocol (HMSP).

A home network provides interoperability and interconnectivity regardless of the appliance manufacturer or the network type so that the user is able to receive desired services at any point in time. However, current home network technologies have independent communication protocol layer structures, as shown in Figure 1, with different addressing schemes, data transmission schemes, data processing methods and data formats.

In order to solve problems associated with interoperability and interconnectivity among heterogeneous network technologies, this standard aims to define the CCP layer as a type of a convergence layer.

Further objectives of this standard include specifying the data transmission method, packet structure and common addressing scheme as well as the signaling protocol for providing home network management, control, A/V and data services.



IEC 2072/07

**Figure 1 – Communication layer structures of network technologies**

**2 Normative references**

None.

**3 Terms, definitions, abbreviations and conventions**

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

**3.1 Terms and definitions**

**3.1.1**

**CCP device**

device which has networking capabilities using commercial network technologies to link to a home network; it also supports at least home network management protocol (HMNP) among four protocols provided in the CCP layer and CCP

**3.1.2**

**CCP addressing**

common addressing scheme used in the CCP layer which consists of four fields: domain address, cluster address and device ID

NOTE One of the characteristics of CCP addressing is that it has a structure that is understood by application programs embedded in devices linked to heterogeneous networks as well as the device users.

**3.1.3**

**home server interface**

**HSI**

interface module in a home server responsible for connection with a particular network which can process the corresponding physical interface and the communication protocol according to the type of network it is connected to

NOTE A home server interface is shown in Figure 2.