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INTERNATIONAL STANDARD

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Digital living network ALLIANCE (DLNA) home networked device interoperability guidelines – Part 10: Low-power mode

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FOREWORD

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International Standard IEC 62481-10 has been prepared under technical area 8: Multimedia home systems and applications for end-user network, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

The text of this International Standard is based on the following documents:

CDV	Report on voting
100/2750/CDV	100/2892/RVC

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

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

A list of all parts of IEC 62481 series, published under the general title *Digital Living Network Alliance (DLNA) home networked device interoperability guidelines,* can be found on the IEC website.

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

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- withdrawn,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

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

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INTRODUCTION

Consumers are acquiring, viewing, and managing an increasing amount of digital media (photos, music, and video) on devices in the consumer electronics (CE), mobile, and personal computer (PC) domains. As such, they want to conveniently enjoy the content, regardless of the source, across different devices and locations in the home. The digital home vision integrates the Internet, mobile, and broadcast networks through a seamless, interoperable network, which will provide a unique opportunity for manufacturers and consumers alike. In order to deliver on this vision, a common set of industry design guidelines is needed that allows vendors to participate in a growing marketplace, leading to more innovation, simplicity, and value for consumers. This document serves that purpose and provides vendors with the information needed to build interoperable networked platforms and devices for the digital home.

DIGITAL LIVING NETWORK ALLIANCE (DLNA) HOME NETWORKED DEVICE INTEROPERABILITY GUIDELINES –

Part 10: Low-power mode

1 Scope

This part of IEC 62481 specifies guidelines for low-power mode management.

Power saving is modular within a physical device. In the context of DLNA networked devices, each physical network interface can have various power modes, some of which can allow Layer 2 or Layer 3 connectivity to still be present, even when many of the other components of the device are powered down. Other physical components, such as screens, hard drives, and similar resources, can also support different power modes.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 62481-1-1:2017, *Digital living network alliance (DLNA) home networked device interoperability guidelines – Part 1-1: Architecture and protocols*

ISO/IEC 29341-31-1, *Information technology – UPnP Device Architecture – Part 31-1: Energy management device control protocol – Energy management service*

3 Terms, definitions and conventions

For the purposes of this document, the terms, definitions and abbreviated terms given in IEC 62481-1-1:2017 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1 Terms and definitions

3.1.1
Network Interface Mode
operation mode of a network interface, the set of modes includes: "up" for IP traffic, "down" but wakeable either internally or externally, or unwakeable

Note 1 to entry: See ISO/IEC 29341-31-1

3.1.2
Network Interface Information
information related to a physical device and its network interface(s)

3.1.3
EMS
EnergyManagement Service
UPnP service that provides information relating to network interfaces and capabilities for resource subscription

Note 1 to entry: The EnergyManagement Service specification is a standard UPnP DCP.

3.2 Conventions

In IEC 62481-1-1:2017 and this document, a number of terms, conditions, mechanisms, sequences, parameters, events, states, or similar terms are printed with the first letter of each word in uppercase and the rest lowercase (e.g., Move). Any lowercase uses of these words have the normal technical English meanings.

4 Networking architecture and guideline conventions

4.1 DLNA home networking architecture

This specification extends the DLNA home networking architecture that is defined in Clause 4 of IEC 62481-1-1:2017.

4.2 Document conventions

See Clause 6 of IEC 62481-1-1:2017, for a description of the DLNA document structure and conventions.

4.3 Guideline structure and layout

See 7.1 of IEC 62481-1-1:2017, for guideline and attribute table layout descriptions.

5 DLNA Device Model

5.1 General

Refer to Clause 5 of IEC 62481-1-1:2017, for a description of the existing DLNA Device Model. This document extends the existing DLNA devices and system usages.

5.2 Device Functions

Power saving is modular within a physical device. In the context of DLNA networked devices, each physical network interface can have various power modes, some of which can allow Layer 2 or Layer 3 connectivity to still be present, even when many of the other components of the device are powered down. Other physical components, such as screens, hard drives, and similar resources, can also support different power modes.

– UPnP EnergyManagement Service: a UPnP EnergyManagement Service makes available information about the description and Network Interface Mode of a physical device's network interface(s). It can also allow other devices to indicate when they are interested in ensuring the availability of the functionality in a DLNA Device Class, and to reserve use of the needed resources at that time.

– UPnP EnergyManagement Control Point: a UPnP EnergyManagement Control Point issues action requests to a UPnP EnergyManagement Service to get information about the description and Network Interface Mode of a physical device's Network Interfaces. It can also issue action requests to indicate when it is interested in ensuring the availability of functionality in a DLNA Device Class, and to reserve use of the needed resources at that time.