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BS EN 62481-2:2014



BSI Standards Publication

Digital living network alliance (DLNA) home networked device interoperability guidelines

Part 2: DLNA media formats

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This British Standard is the UK implementation of EN 62481-2:2014. It is identical to IEC 62481-2:2013.

The UK participation in its preparation was entrusted to Technical Committee EPL/100, Audio, video and multimedia systems and equipment.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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January 2014

ICS 33.160; 35.100.05; 35.110

English version

**Digital living network alliance (DLNA) home networked device
interoperability guidelines -
Part 2: DLNA media formats
(IEC 62481-2:2013)**

Lignes directrices pour l'interopérabilité
des dispositifs domestiques de la DLNA
(Digital living network alliance) -
Partie 2: Formats de média DLNA
(CEI 62481-2:2013)

Digital living network alliance (DLNA)
Interoperabilitäts-Richtlinien für Geräte im
Heimnetzwerk -
Teil 2: Medien-Formate
(IEC 62481-2:2013)

This European Standard was approved by CENELEC on 2013-10-30. 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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European Committee for Electrotechnical Standardization
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CEN-CENELEC Management Centre: Avenue Marnix 17, B - 1000 Brussels

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Foreword

The text of document 100/1993/CDV, future edition 2 of IEC 62481-2, prepared by technical area 9, "Audio, video and multimedia applications for end-user network", of IEC/TC 100, "Audio, video and multimedia systems and equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62481-2:2014.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2014-07-30
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-10-30

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Endorsement notice

The text of the International Standard IEC 62481-2:2013 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 documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When 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> |
|--------------------|-------------|---|--------------|-------------|
| IEC 62481-1 | 2013 | Digital living network alliance (DLNA) home networked device interoperability guidelines - Part 1: Architecture and protocols | EN 62481-1 | 2014 |
| ETSI EN 301 192 | 2003 | Digital Video Broadcasting (DVB) - DVB specification for data broadcasting, V1.2.1 | - | - |
| ETSI EN 300 472 | 2003 | Digital Video Broadcasting (DVB) - Specification for conveying ITU-R system B teletext in DVB bitstreams | - | - |
| ETSI TS 102 366 | 2005 | Digital Audio Compression (AC-3, Enhanced AC-3) | - | - |
| ETSI TS 102 366 | 2008 | Digital Audio Compression (AC-3, Enhanced AC-3) | - | - |
| ETSI TS 101 154 | 2005 | Digital Video Broadcasting (DVB); Specification for the use of Video and Audio Coding in Broadcasting Applications based on the MPEG-2 Transport Stream | - | - |
| ETSI TS 101 154 | 2009 | Digital Video Broadcasting (DVB); Specification for the use of Video and Audio Coding in Broadcasting Applications based on the MPEG-2 Transport Stream | - | - |
| ETSI EN 300 468 | 2003 | Digital Video Broadcasting (DVB): Specification for Service Information (SI) in DVB systems | - | - |
| ETSI EN 300 468 | 2009 | Digital Video Broadcasting (DVB): Specification for Service Information (SI) in DVB systems | - | - |
| ETSI EN 301 775 | 2003 | Digital Video Broadcasting (DVB) - Specification for the carriage of Vertical Blanking Information (VBI) data in DVB bitstreams | - | - |
| ISO/IEC 10918-1 | 1994 | Information technology - Digital compression and coding of continuous-tone still images: Requirements and guidelines | - | - |
| ISO/IEC 11172-2 | 1993 | Information technology - Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s - Part 2: Video | - | - |
| ISO/IEC 11172-3 | 1993 | Information technology - Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s - Part 3: Audio | - | - |

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| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|-------------------------------------|--------------|---|--------------|-------------|
| ISO/IEC 13818-1 + corr. December | 2000 2002 | Information technology - Generic coding of moving pictures and associated audio information - Part 1: Systems | - | - |
| ISO/IEC 13818-2 | 2000 | Information technology - Generic coding of moving pictures and associated audio information: Video | - | - |
| ISO/IEC 13818-3 | 1998 | Information technology - Generic coding of moving pictures and associated audio information - Part 3: Audio | - | - |
| ISO/IEC 13818-7 | 2003 | Information technology - Generic coding of moving pictures and associated audio information - Part 7: Advanced Audio Coding (AAC) | - | - |
| + A1 | 2007 | | - | - |
| + A1 | 2004 | | - | - |
| ISO/IEC 13818-11 | 2004 | Information technology - Generic coding of moving pictures and associated audio information - Part 11: IPMP on MPEG-2 systems | - | - |
| ISO/IEC 14496-1 | 2001 | Information technology - Coding of audio-visual objects - Part1: Systems | - | - |
| ISO/IEC 14496-2 + A2 | 2001 2002 | Information technology - Coding of audio-visual objects - Part 2: Visual | - - | - - |
| ISO 14496-2 + A2 | 2004 2005 | Information technology - Coding of audio-visual objects - Part 2: Visual | - - | - - |
| ISO/IEC 14496-2 | 2004 | Information Technology – Coding of audio-visual objects - Part 2: Visual | - | - |
| + A1 | 2004 | | - | - |
| + A1 | 2004 | | - | - |
| + A3 | 2007 | | - | - |
| + A4 | 2008 | | - | - |
| ISO/IEC 14496-3 + A1 | 2001 2003 | Information technology - Coding of audio-visual objects - Part 3: Audio | - - | - - |
| ISO/IEC 14496-3 | 2005 | Information technology - Coding of audio-visual objects - Part 3: Audio | - | - |
| + A2 | 2006 | | - | - |
| + A2 | 2006 | | - | - |
| ISO/IEC 14496-4 + corr. August | 2004 2005 | Information technology - Coding of audio-visual objects - Part 4: Conformance testing | - | - |
| ISO/IEC 14496-10 | 2003 | Information technology - Coding of audio-visual objects - Part 10: Advanced Video Coding | - | - |
| ISO/IEC 14496-12 | 2004 | Information technology - Coding of audio-visual objects - Part 12:ISO base media file format - Hint track format for ALC/LCT and FLUTE transmission and multiple meta box support | - | - |
| ISO/IEC 14496-14 | 2003 | Information technology - Coding of Audio-Visual Objects - Part 14: MP4 file format | - | - |

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| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/IEC</u> | <u>Year</u> |
|---------------------------|-------------|--|---------------|-------------|
| ISO/IEC 14496-15 | 2004 | Information technology - Coding of Audio-Visual Objects - Part 15: AVC file format | - | - |
| ISO/IEC 15948 | 2004 | Information technology - Computer graphics and image processing - Portable Network Graphics (PNG) - Functional specification | - | - |
| ISO/IEC 23003-1 | 2007 | Information technology - MPEG audio technologies - Part 1: MPEG Surround | - | - |
| ISO/IEC 29341-3-12 | 2008 | Information technology - UPnP Device Architecture - Part 3-12: Audio Video Device Control Protocol - Content Directory Service | - | - |
| ETSI TS 102 114 | - | DTS Coherent Acoustics; Core and Extensions | - | - |
| ETSI TS 102 366 | - | Digital Audio Compression (AC-3, Enhanced AC-3) Standard, Version 1.1.1 | - | - |
| ETSI TS 102 563 | - | Transport of Advanced Audio Coding (AAC) audio, Digital Audio Broadcasting (DAB), Version 1.1.1 | - | - |
| IETF RFC 1945 | - | Hypertext Transfer Protocol – HTTP/1.0, T. Berners-Lee, MIT/LCS, R. Fielding, UC Irvine, H. Frystyk | - | - |
| IETF RFC 2046 | - | Multipurpose Internet Mail Extensions (MIME) - Part 2: Media Types | - | - |
| IETF RFC 2616 | - | Hypertext Transfer Protocol HTTP/1.1. | - | - |
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| IETF RFC 3555 | - | MIME Type Registration of RTP Payload Formats, S. Casner, Packet Design | - | - |
| ANSI/SCTE 43 | 2005 | Digital Video Systems Characteristics Standard for Cable Television | - | - |
| ANSI/SCTE 65 | 2008 | Service Information Delivered Out-Of-Band For Digital Cable Television | - | - |
| ANSI/SCTE-128 | 2010 | AVC Video Systems and Transport Constraints for Cable Television | - | - |
| ARIB ST B-1 | - | Digital Receiver for Digital Satellite Broadcasting Services using Communication Satellites | - | - |
| ARIB TR B-14 | - | Operational Guidelines For Digital Terrestrial Television Broadcasting | - | - |
| ARIB TR B-15 | - | Operational Guidelines For Digital Satellite Broadcasting | - | - |
| ARIB STD B-21 | - | Receiver for Digital Broadcasting | - | - |
| ARIB B 24 | - | Data Coding and Transmission Specification for Digital Broadcasting, Association of Radio Industries and Businesses | - | - |
| ARIB STD B-32 | - | Video Coding, Audio Coding and Multiplexing - Specifications for Digital Broadcasting | - | - |
| ASF | - | Advanced System Format (ASF) Specification | - | - |
| ATRAC3 plus specification | - | Licensing Program for DLNA, Sony | - | - |

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| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/HD</u> | <u>Year</u> |
|-------------------------|-------------|---|--------------|-------------|
| ATSC Standard A/6 | - | Program and System Information Protocol for Terrestrial Broadcast and Cable (PSIP) | - | - |
| ATSC Standard A/52A | - | Digital Audio Compression (AC-3*) Rev A, Advanced Television Systems Committee | - | - |
| ATSC A/53B Annex B | - | ATSC Digital Television Standard - Part 1: Digital Television System | - | - |
| ATSC Standard A/53- | - | Digital Television Standard | - | - |
| ETSI TS 102 005 | - | Specification for the use of video and audio coding in DVB services delivered directly over IP, Digital Video Broadcasting (DVB), Version 1.2.1 | - | - |
| ATSC Standard A/53C | - | Digital Television Standard, Revision C with Amendment 1 | - | - |
| ETSI ES 201 812 | - | Multimedia Home Platform (MHP) specification 1.0.3 (DVB-MHP), V1.1.1, Digital Video Broadcasting (DVB), European Telecommunications Standard Institute | - | - |
| ETSI EN 301 775 | - | Specification for the carriage of Vertical Blanking Information (VBI) data in DVB bitstreams (DVB VBI data), European Telecommunications Standard Institute, V1.2.1, Digital Video Broadcasting (DVB) | - | - |
| ETSI EN 301 192 | - | DVB Specification for Data broadcasting (DVB-data broadcasting), V1.3.1, European Telecommunications Standard Institute | - | - |
| ETSI EN 300 743 | - | Subtitling systems (DVB Subtitles), V1.2.1, Digital Video Broadcasting (DVB), European Telecommunications Standard Institute | - | - |
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| ITU-T Rec G.726 | - | General Aspects of Digital Transmission Systems, Terminal Equipment - 40, 32, 24, 16 kbit/s Adaptive Differential Pulse Code Modulation (ADPCM) | - | - |
| ITU-T Rec H.263 Annex X | - | Profiles and levels definition | - | - |
| ITU-T Rec H.263 | 2005 | Video coding for low bit rate communication | - | - |
| ISO/IEC 11172-1 | 1993 | Information technology - Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s - Part 1: Systems | - | - |
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| <u>Publication</u> | <u>Year</u> | <u>Title</u> | <u>EN/IEC</u> | <u>Year</u> |
|--------------------|-------------|--|---------------|-------------|
| ETSI TSR 101 154 | - | Implementation Guidelines for the use of MPEG-2 Systems, Video and Audio Coding in Broadcasting Applications based on the MPEG-2 Transport Stream, V1.4.1, Digital Video Broadcasting (DVB*), European Telecommunications Standard Institute | - | - |

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which can be obtained through the HighMAT Licensing Program
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<http://www.3gpp.org/ftp/Specs/html-info/26140.htm>

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3GPP TS 26.290, *Extended AMR Wideband codec; Transcoding functions*, Release 6 Version 6.3.0, 2005-06-24

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3GPP TS 26.346, *Multimedia Broadcast/Multicast Service (MBMS); Protocols and codecs*, Release 7

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INTRODUCTION

It is envisioned that in the home network environment, devices will be capable of exchanging content items that originate from different sources. Content items will typically come encoded in different formats. The term "format" designates the compression and encoding tools utilized to generate the binary instance of a content item, which will be eventually exchanged over the home network using streaming or file transfer protocols. Examples of formats include MPEG-2, MPEG-4, WMV and others for video; or MP3, AAC, WMA and others for audio.

Formats alone, however, include as part of their specifications, multiple parameters, features and tools which can be used in a myriad of combinations to generate content binaries. In this standard, the notion of a Media Format Profile is introduced to identify a particular suitable combination of format parameters which define a way for representing content binaries. A format like MPEG-2 for example, can have multiple Media Format Profiles depending on selections for the companion audio, the system-layer multiplexing specifications, allowed frame resolutions, allowed aspect ratios, allowed bit rates, etc.

The number of potential combinations for suitable Media Format Profiles increases rather quickly, as evidenced by the long profile lists observed in the different clauses and subclauses of this standard. Consequently, this standard introduces the notion of mandatory profiles, supported by all devices, as a means to provide baseline content interoperability in the home. Servers shall be capable of exposing and transferring mandatory profiles while players and renderers shall be capable of decoding and rendering the mandatory profiles. Unfortunately, mandatory Media Format Profiles cannot be defined universally to suit all scenarios. For this reason, the definition of mandatory profiles has to be made taking into account the geographical region and the target device category. Clause 6 provides the definitions and requirements for using mandatory profiles.

All profiles not defined as mandatory become optional in the home. An implementer can choose whether to support optional profiles. When supported and used with DLNA's discovery and transfer methods, it shall follow the guideline provisions for encoding and exposing optional profiles.

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

Part 2: DLNA media formats

1 Scope

This part of IEC 62481 describes DLNA Media Format Profiles applicable to the DLNA Device Classes defined in IEC 62481-1. Media Format Profiles are defined for each of the following media classes: Audio, Image, and AV. In addition, Profile ID values that identify media collections and printer XHTML documents are also introduced.

The Profile ID is exposed in a server's Content Directory Service (CDS) to signal potential networked players or renderers the existence of a content item with particular coding and compression features defined precisely by the item's Profile ID.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62481-1:2013, *Digital living network alliance (DLNA) home networked device interoperability guidelines – Part 1: Architecture and protocols*

ISO/IEC 10918-1:1994, *Information technology – Digital compression and coding of continuous-tone still images: Requirements and guidelines*

ISO/IEC 11172-1:1993, *Information technology – Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s – Part 1: Systems*

ISO/IEC 11172-2:1993, *Information technology – Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s – Part 2: Video*

ISO/IEC 11172-3:1993, *Information technology – Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s – Part 3: Audio*

ISO/IEC 13818-1:2000, *Information technology – Generic coding of moving pictures and associated audio information – Part 1: Systems*

ISO/IEC 13818-2:2000, *Information technology – Generic coding of moving pictures and associated audio information – Part 2: Video*

ISO/IEC 13818-3:1998, *Information technology – Generic coding of moving pictures and associated audio information – Part 3: Audio*

ISO/IEC 13818-7:2003, *Information technology – Generic coding of moving pictures and associated audio information – Part 7: Advanced Audio Coding (AAC)*