IEC 62481-2

Edition 2.0 2013-09

INTERNATIONAL STANDARD

colour inside

Digital living network alliance (DLNA) home networked device interoperability guidelines –
Part 2: DLNA media formats

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

PRICE CODE XH

ICS 35.100.05; 35.110; 33.160

ISBN 978-2-8322-0937-0

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 2: DLNA media formats

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62481-2 has been prepared technical area 9: Audio, video and multimedia applications for end-user network, by IEC technical committee 100: Audio, video and multimedia systems and equipment.

This second edition cancels and replaces the first edition published in 2007, and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) addition of new optional media format profiles for Audio and AV content;

b) addition of mandatory media format profiles for the CVP-1 Device Profile;

c) includes updates to resolve interoperability issues.

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

CDV	Report on voting
100/1993/CDV	100/2081/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.

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 publication will remain unchanged until the stability 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,
- withdrawn,
- replaced by a revised edition, or
- amended.

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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)*

ISO/IEC 13818-7:2003/Amd 1:2004, *Information technology – Generic coding of moving pictures and associated audio information – Part 7: Advanced Audio Coding (AAC) Amendment 1: Embedding of bandwidth extension*

ISO/IEC 13818-7:2005, *Information technology – Generic coding of moving pictures and associated audio information– Part 7: Advanced Audio Coding (AAC)*

ISO/IEC 13818-7:2006/Amd 1: 2007, *Information technology – Coding of Audio-Visual Objects – Part 7: Advanced Audio Coding (AAC) Amendment 1*

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 – Part 1: Systems*

ISO/IEC 14496-2:2001, *Information technology – Coding of audio-visual objects – Part 2: Visual*[1]

ISO/IEC 14496-2:2001/Amd 2:2002, *Information Technology – Coding of audio-visual objects – Part 2: Visual, Amendment 2: Streaming video profile*

ISO/IEC 14496-2:2004, *Information Technology – Coding of audio-visual objects – Part 2: Visual*

ISO/IEC 14496-2:2004/ Amd 1, *Information Technology – Coding of Audio-Visual Objects – Part 2: Visual, AMENDMENT 1: Error resilient simple scalable profile*

ISO/IEC 14496-2:2004/Amd 2:2005, *Information Technology – Coding of audio-visual objects – Part 2: Visual, Amendment 2: "New Levels for Simple Profile"*

ISO/IEC 14496-2:2004/Amd 3 – *Coding of audio-visual objects – Part 2: Visual, Amendment 3:New levels and tools for MPEG-4 visual*

ISO/IEC 14496-2:2004/PDAM 4, *Information Technology – Coding of Audio-Visual Objects – Part 2: Visual, Amendment 4, Simple profile Level 6*

ISO/IEC 14496-3:2001, *Information technology – Coding of Audio-Visual Objects – Part 3: Audio*

ISO/IEC 14496-3:2001/Amd.1:2003, *Information technology – Coding of Audio-Visual Objects – Part 3: Audio, Amendment 1: Bandwidth extension*

ISO/IEC 14496-3:2005, *Information technology – Coding of audio-visual objects: Audio*

ISO/IEC 14496-3:2005/Amd 2:2006, *Information technology – Coding of Audio-Visual Objects – Part 3: Audio, Amendment 2: Audio Lossless Coding (ALS), new audio profiles and BSAC extensions*

ISO/IEC 14496-3:2005/Amd 2:2006/Cor 2, *Information technology – Coding of Audio-Visual Objects – Part 3: Audio, Amendment 2, Technical Corrigendum 2*

ISO/IEC 14496-4, *Information technology – Coding of audio-visual objects – Part 4: Conformance testing*[2]

_____

1 In this standard referenced as MPEG 4, part 2.

ISO/IEC 14496-10:2003, MPEG-4 Video, *Information technology – Coding of audio-visual objects – Part 10: Advanced Video Coding*[3]

ISO/IEC 14496-12:2004, *Information technology – Coding of Audio-Visual Objects – Part 12: ISO base media file format*

ISO/IEC 14496-14:2003, *Information technology – Coding of Audio-Visual Objects – Part 14: MP4 file format*[4]

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,* International Standard Organization

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*

ITU-R Rec BS.1196-11, *Audio coding for digital terrestrial television broadcasting, Annex 2 (Dolby* AC-3 Audio),* International Telecommunication Union, April 2001

ITU-R Rec BO.1516, *Digital multiprogramme television systems for use by satellite operating in the 11/12 GHz frequency range, System B,* International Telecommunications Union, 2001

ITU-T Rec H.263:2005, *Video coding for low bit rate communication*

ITU-T Rec H.263 Annex X, *Profiles and levels definition*

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)*,1990

ETSI EN 300 468, *Specification for Service Information (SI) In DVB systems (SI),* V1.5.1 (2003-05), Digital Video Broadcasting (DVB), European Telecommunications Standard Institute. http://pda.etsi.org/pda/home.asp?wki_id=U4j.cLPj9hPQUQUWcyK@f

ETSI EN 300 468, *Specification for Service Information (SI) In DVB systems (SI),* Digital Video Broadcasting (DVB), v1.10.1, European Telecommunications Standard Institute (2009-07) (This is an update of ETSI EN 300 468)

ETSI EN 300 472, *Specification for conveying ITU-R System B Teletext in DVB bitstreams (DVB Teletext),* V1.3.1 (2003-05), Digital Video Broadcasting (DVB), European Telecommunications Standard Institute
http://pda.etsi.org/pda/home.asp?wki_id=a0DKmDqQGXpqwwpsWuZ3v

ETSI EN 300 743, *Subtitling systems (DVB Subtitles), V1.2.1 (2002-10),* Digital Video Broadcasting (DVB), European Telecommunications Standard Institute
http://pda.etsi.org/pda/home.asp?wki_id=l6LxE44yeylmqmqq@b59E

---

2 In this standard referenced as MPEG 4, part 4.

3 In this standard referenced as MPEG 4, part 10.

4 In this standard referenced as MPEG 4, part 14.

ETSI EN 300 743, *Subtitling systems,* Digital Video Broadcasting (DVB), v1.3.1, (2006-07) (This is an update of ETSI EN 300 743)

ETSI EN 301 192, *DVB Specification for Data broadcasting (DVB data broadcasting),* V1.3.1 (2003-05), European Telecommunications Standard Institute
http://pda.etsi.org/pda/home.asp?wki_id=iSIfFHo2bsMNRNRSwmkAp

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 (2003-05), Digital Video Broadcasting (DVB)
http://pda.etsi.org/pda/home.asp?wki_id=2760SgqWfSklrrkocwSOy

ETSI ES 201 812, *Multimedia Home Platform (MHP) specification 1.0.3 (DVB-MHP),* V1.1.1 (2003-12), Digital Video Broadcasting (DVB), European Telecommunications Standard Institute
http://pda.etsi.org/pda/home.asp?wki_id=EmytK-ljBPIJQQIIzKtBe

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 (20040-057), Digital Video Broadcasting (DVB*), European Telecommunications Standard Institute
http://webapp.etsi.org/action/PU/20050111/ts_101154v010601p.pdf

ETSI TS 101 154, *Implementation guidelines for the use of Video and Audio Coding in Broadcasting Applications based on the MPEG-2 Transport Stream,* Digital Video Broadcasting (DVB); v1.7.1 (2005-06) (This is an update of ETSI TSR 101 154)

ETSI TS 101 154, *Implementation guidelines for the use of Video and Audio Coding in Broadcasting Applications based on the MPEG-2 Transport Stream,* Digital Video Broadcasting (DVB), v1.9.1 (2009-09) (This is an update of ETSI TS 101 154)

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, 2006-04

ETSI TS 102 114, *DTS Coherent Acoustics; Core and Extensions,* 2006

ETSI TS 102 366, *Digital Audio Compression (AC-3, Enhanced AC-3) Standard,* Version 1.1.1, 2005-02

ETSI TS 102 366, *Digital Audio Compression (AC-3, Enhanced AC-3) Standard*, v1.2.1 (2008-08) (This is an update of ETSI TS 102 366)

ETSI TS 102 563, *Transport of Advanced Audio Coding AAC) audio,* Digital Audio Broadcasting (DAB), Version 1.1.1, 2007-01

IETF RFC 1945, *Hypertext Transfer Protocol – HTTP/1.0,* T. Berners-Lee, MIT/LCS, R. Fielding, UC Irvine, H. Frystyk, May 1996.
http://www.ietf.org/rfc/rfc1945.txt

IETF RFC 2046, *Multipurpose Internet Mail Extensions (MIME) – Part Two: Media Types,* November 1996

IETF RFC 2616, *Hypertext Transfer Protocol HTTP/1.1.*
ftp://ftp.isi.edu/in-notes/rfc2616.txt

IETF RFC 3551, *RTP Profile for Audio and Video Conferences with Minimal Control,* H. Schulzrinne and S. Casner, July 2003
http://www.ietf.org/rfc/rfc3551.txt

IETF RFC 3555, *MIME Type Registration of RTP Payload Formats,* S. Casner, Packet Design, P. Hoschka, July 2003
http://www.ietf.org/rfc/rfc3555.txt

ANSI/SCTE 43:2005, *Digital Video Systems Characteristics Standard for Cable Television*, 2005

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 STD B-1, Ver.2.0, *Digital Receiver for Digital Satellite Broadcasting Services using Communication Satellites*, Mar 14 2007

ARIB TR B-14, Ver. 2.7, *Operational Guidelines For Digital Terrestrial Television Broadcasting*, March 14 2006

ARIB TR B-15, Ver. 3.6, *Operational Guidelines For Digital Satellite Broadcasting*, March 14 2006

ARIB STD B-21, Ver. 4.4, *Receiver for Digital Broadcasting*, Sept 29 2005

ARIB B 24, ARIB* STD-B24 Version 3.2, *Data Coding and Transmission Specification for Digital Broadcasting*, Association of Radio Industries and Businesses, November 15, 2001
http://www.arib.or.jp/english/html/overview/sb_e.html

ARIB STD B-32, Ver. 1.9, *Video Coding, Audio Coding and Multiplexing Specifications for Digital Broadcasting*, March 14 2006

ASF, *Advanced System Format (ASF) Specification*
which can be obtained from
http://www.microsoft.com/windows/windowsmedia/format/asfspec.aspx

ATRAC3plus specification,
which can be obtained from ATRAC3 Licensing Program for DLNA, Sony, by contacting atrac_dlna@av.crl.sony.co.jp
http://www.sony.net/Products/ATRAC3/tech/atrac3plus.html

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, 20 Aug. 2001
http://www.digitalpreservation.gov/formats/fdd/fdd000209.shtml

ATSC A/53B Annex B, *ATSC Digital Television Standard: Part 1 – Digital Television System* (A/53, Part 1:2007)

ATSC Standard A/53, *Digital Television Standard*, 2007, 2009, 2010
(This is an update of the ATSC Standard A/53C:2004 ATSC Standard A/53C)

ATSC Standard A/53C:2004: *Digital Television Standard*, Revision C with Amendment 1, 21, May, 2004
http://www.atsc.org

BDA, *System Description Blu-ray Disc Rewritable Format Part 3, Audio Visual Basic Specifications (Version 3.01)*

BDA, *System Description Blu-ray Disc Rewritable Format Part 3, Audio Visual Basic Specifications (Version 2.11)*

BDA, *System Description Blu-ray Disc Read-Only Format Part 3 Audio Visual Basic Specifications (2005-03)*

CEA-849A, *Application Profiles for EIA*-775A compliant DTVs*, CEA. (DTV), Consumer Electronics Association, December 6, 2001
http://www.ce.org/Standards/StandardsListing.aspx

CompuServe Incorporated, *Graphics Interchange Format: Version 89a*, Columbus, OH, USA, 1990

CSS Print Profile, *W3C Candidate Recommendation*, World Wide Web Consortium (W3C), February 25, 2004. Available from
http://www.w3.org/TR/css-print/

CSS3 Paged Media Module, *CSS3 Paged Media Module*, H. Lie and J. Bigelow (editor), W3C February 25, 2004
http://www.w3.org/TR/2004/CR-css3-page-20040225

DTS 9302J85300, DTS document #9302J85300, *Implementation of DTS audio in MPEG-2 structures as defined in ISO/IEC 13818-1*

DTS 9302J81100, DTS document #9302J81100, *Implementation of DTS audio in media files based on ISO/IEC 14496*

DTS 9302F30400, DTS document #9302F30400, *DTS-HD Substream and Decoder Interface Description*

DVD Specifications, *for DVD-RAM/DVD-RW/DVD-R* for General Discs Part 3 Video Recording*, DVD Forum, Version 1.1, May 2001
http://www.dvdfllc.co.jp/

DVD Specifications, *DVD for High Definition Video: MLP Reference Information*, DVD Forum, Version 1.0, August 2005

DVD Forum DVD Specifications, *for High Definition Video, DTS-HD Reference Information (Version 1.0, 2005-08)*

DVD Forum DVD Specifications, *DVD Specifications for High Definition Video (Chapter 5, Version 1.0, 2005-08)*

DVD Forum DVD Specifications, *for Read Only Disc (Part 3: Video Specifications Ver1.1)*

HighMAT specifications,
which can be obtained through the HighMAT Licensing Program
http://www.highmat.com/license/specifications.asp

ID3 tag version 2.4.0 – *Main Structure*, M. Nilsson, November 1, 2000
http://www.id3.org/id3v2.4.0-structure.txt

JEITA CP-3451, *Exchangeable image file format for digital still cameras*: Exif Version 2.2, Standard of Japan Electronics and Information Technology Industries Association, April 2002.
http://tsc.jeita.or.jp/avs/data/cp3451.pdf

JEITA CP-3451-1, *Exchangeable image file format for digital still cameras*: Exif Version 2.21. (Amendment Ver2.2), Standard of Japan Electronics and Information Technology Industries Association, September 2003.
http://tsc.jeita.or.jp/avs/data/cp3451_1.pdf

JEITA CP-3461, *Design rule for Camera File system DCF*, Version 2.0, Standard of Japan Electronics and Information Technology Industries Association, September 2003
http://tsc.jeita.or.jp/avs/data/cp3461.pdf

JPEG File Interchange Format, Version 1.02, Eric Hamilton, C-Cube Microsystems, September 1, 1992
http://www.w3.org/Graphics/JPEG/jfif3.pdf

Matroska, *Matroska File Format specification*
http://www.matroska.org/

Nero Digital Format, *Nero Digital Format Specification v.2.0*, 2007

OMA (Open Mobile Alliance), *OMA Multimedia Messaging Service v1.3*

SCTE 54 2002, *Digital Video Service Multiplex and Transport System Standard for Cable Television*, Society of Cable Telecommunications Engineers Inc.
(formerly DVS 241)
http://www.scte.org/home.cfm

SMPTE 421M-2006, *VC-1 Compressed Video Bitstream Format and Decoding Process*, 2006

SMPTE RP227-2006, *VC-1 Bitstream Transport Encodings*, 2006

WMA Specifications
which can be obtained through the Windows Media 9 Series License Program
http://wmlicense.smdisp.net/licenserequest/

WMV9 specifications, *Windows Media 9 Series License Program*,
http://wmlicense.smdisp.net/licenserequest/

W3C PNG, *Portable Network Graphics (PNG) Specification (Second Edition) Information technology – Computer graphics and image processing – Portable Network Graphics (PNG):* Functional specification, ISO/IEC 15948:2004, W3C, November 10, 2003
http://www.w3.org/TR/2003/REC-PNG-20031110

W3C XHTML-Print, *XHTML-Print,* W3C Recommendation, World Wide Web Consortium (W3C), January 20, 2004. Available from
http://www.w3.org/TR/xhtml-print/

XHTML-Print/CSS-Print Guidelines, *XHTML-Print/CSS Print Profile Guidelines for PrintEnhanced:1*, UPnP Forum, May 4, 2005.
http://www.upnp.org/standardizeddcps/documents/PrintEnhanced1_guideline_v1_050504.pdf

XHTML Photo Templates, *XHTML-Print Photo Templates for UPnP PrintEnhanced:1 v1.0*, UPnP Forum, May 4, 2005
http://www.upnp.org/standardizeddcps/documents/Phototemplates_v1_050504.pdf

XHTML-Print Test, *XHTML-Print Test Suite*, W3C Candidate Recommendation, World Wide Web Consortium (W3C), January 20, 2004
http://www.w3.org/MarkUp/Test/xhtml-print/20040426

3GPP TR 26.911, *Codecs for Circuit Switched Multimedia Telephony Service; Terminal Implementer's Guide*, Release 6 Version 6.0.0, 2004-09-30
http://www.3gpp.org/ftp/Specs/html-info/26911.htm

3GPP TS 26.244, *3GPP* file format (3GP)*, Release-6, 3GPP
http://www.3gpp.org/ftp/Specs/html-info/26244.htm

3GPP TS 26.090, *Adaptive Multi-Rate (AMR) Speech Codec, Transcoding functions*, Release 6 Version 6.0.0, 2005-01-06
http://www.3gpp.org/ftp/Specs/html-info/26290.htm

3GPP TS 26.101, *Adaptive Multi-Rate (AMR) Speech Codec Frame Structure*, Release 6 Version 6.0.0, 2004-09-30
http://www.3gpp.org/ftp/Specs/html-info/26101.htm

3GPP TS 26.140, *Multimedia Messaging Service (MMS); Media Formats and Codecs*, Release 6 Version 6.2.0, 2005-04-01
http://www.3gpp.org/ftp/Specs/html-info/26140.htm

3GPP TS 26.140, *Multimedia Messaging Service (MMS); Media Formats and Codecs*, Release 7

3GPP TS 26.234, *Transparent End-to-End Packet-Switched Streaming Service (PSS); Protocols and Codecs*, Release 6 Version 6.4.0, 2005-06-24
http://www.3gpp.org/ftp/Specs/html-info/26234.htm

3GPP TS 26.234, *Transparent end-to-end Packet-switched Streaming Service (PSS); Protocols and codecs*, Release 7

3GPP TS 26.244, *3GPP file format (3GP)*, Release 7

3GPP TS 26.290, *Extended AMR Wideband codec; Transcoding functions*, Release 6 Version 6.3.0, 2005-06-24
http://www.3gpp.org/ftp/Specs/html-info/26290.htm

3GPP TS 26.346, *Multimedia Broadcast/Multicast Service (MBMS); Protocols and codecs*, Release 6

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