



Edition 1.0 2017-05

INTERNATIONAL STANDARD



Consumer terminal function for access to IPTV and open internet multimedia services – Part 1: General (standards.iteh.ai)





THIS PUBLICATION IS COPYRIGHT PROTECTED Copyright © 2017 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office	Tel.: +41 22 919 02 11
3, rue de Varembé	Fax: +41 22 919 03 00
CH-1211 Geneva 20	info@iec.ch
Switzerland	www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

The advanced search enables to find IEC publications by a variety of criteria (reference number text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished Stay up to date on all new IEC publications. Just Published

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing 20 000 terms and definitions in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

65 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

s. Just Published IEC Customer Service Centre - webstore.iec.ch/csc

details all new publications released. Available online and 66 of you wish to give us your feedback on this publication or also once a month by emailutps://standards.iteh.ai/catalog/standarneed.furthecassistance.please.contact the Customer Service 1b6b287056c9/jec.Centre:-qse@jec.ch.





Edition 1.0 2017-05

INTERNATIONAL STANDARD



Consumer terminal function for access to IP TV and open internet multimedia services – Part 1: General (standards.iteh.ai)

<u>IEC 62766-1:2017</u> https://standards.iteh.ai/catalog/standards/sist/30ec30f4-1cf9-4f5e-bb07-1b6b287056c9/iec-62766-1-2017

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 33.160.99; 35.110; 35.2440.95

ISBN 978-2-8322-4208-7

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWO)RD	4
INTRODU	JCTION	6
1 Scop)e	8
2 Norn	native references	8
3 Term	ns. definitions and abbreviated terms	9
3.1	Terms and definitions	q
3.2	Abbreviated terms	
4 OIPF	terminal function and network interfaces overview	16
4 1	General	16
4.2	Media formats	18
4.3	Adaptive streaming	19
4.4	Content metadata	
4.5	Protocols	20
4.6	Declarative application environment	22
4.7	Procedural application environment	23
4.8	Authentication, content protection and service protection	23
4.9	Profiles	24
Annex A	(informative) XML schemas NDARD PREVIEW	26
A.1	Imports	26
A.2	Includes	27
A.3	Redefines	27
A.3.′	Generativ/standards.iteh.ai/catalog/standards/sist/30ec30f4-1ct9-4f5e-bb07-	27
A.3.2	2 ce-html-profiles-1-0 xsd87056c9/iec-62766-1-2017	28
A.4	Schemas	28
A.5	Classification schemes	29
A.6	Examples	29
Annex B	(informative) High-level architecture	30
B.1	Reference points identification	30
B.2	Reference points description	30
B.3	Residential network high-level architectural overview	32
B.3.′	1 Architecture	32
B.3.2	2 Functional entities	33
B.4	Residential network functional entities	34
B.4.′	1 General	34
B.4.2	2 Open IPTV terminal functional entity (OITF)	35
B.4.3	3 OITF and IG	38
B.4.4	4 OITF, IG, AG and CSPG	40
Bibliogra	phy	43
Figure 1 -	- Open IPTV Forum scope	6
Figure 2 – IPTV solution scope		
Figure 3 – Residential network, functional entities, UNI and HNI reference points		
- Figure B	1 - Mapping functional entities to UNI reference points	30
Figure R	2 – Residential network architecture	32

Figure B.3 – OITF functions and exposed interfaces	35
Figure B.4 – OITF and IG	38
Figure B.5 – All HN functional entities	40
Table 1 – UNI reference point descriptions and protocols	22
Table A.1 – Imported XML schema files	26
Table A.2 – Imported classification schemes	27
Table A.3 – OIPF XML schema include files	27
Table A.4 – OIPF XML schemas	28
Table A.5 – OIPF XML examples	29
Table A.6 – OIPF XML examples	29
Table B.1 – UNI reference points	31

iTeh STANDARD PREVIEW (standards.iteh.ai)

NTERNATIONAL ELECTROTECHNICAL COMMISSION

CONSUMER TERMINAL FUNCTION FOR ACCESS TO IPTV AND OPEN INTERNET MULTIMEDIA SERVICES –

Part 1: General

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.
- 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. (Standards.iten.al)
- 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. https://standards.iteh.ai/catalog/standards/sist/30ec30f4-1cf9-4f5e-bb07-
- 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.

A Category D liaison was set up between TC100 and the OPEN IPTV FORUM in 2011. The OPEN IPTV FORUM was merged with the Hybrid Broadcast Broadband Television (HbbTV) Association in 2014.

International Standard IEC 62766-1 has been prepared by 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
100/2484/CDV	100/2656/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 in the IEC 62766 series, published under the general title *Consumer terminal function for access to IPTV and open internet multimedia services,* 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.

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. **Teh STANDARD PREVIEW**

(standards.iteh.ai)

INTRODUCTION

The IEC 62766 series is based on a series of specifications that was originally developed by the Open IPTV Forum (OIPF). They specify the user-to-network interface (UNI) for consumer terminals to access IPTV and open internet multimedia services over managed or non-managed networks as defined by OIPF.

The Open IPTV Forum (OIPF) IPTV solution provides specifications for an end-to-end platform for the deployment of IPTV services. Figure 1 shows a high-level logical view of the scope of the OIPF IPTV solution.

The Open IPTV Forum has developed an end-to-end solution to allow any consumer enddevice, compliant to the Open IPTV Forum specifications, to access enriched and personalised IPTV services either in a managed or a non-managed network.

To that end, the Open IPTV Forum focuses on standardising the user-to-network interface (UNI) both for a managed and a non-managed network, as depicted in Figure 1.



Figure 1 – Open IPTV Forum scope

Throughout the specifications, the terms "open Internet" and "unmanaged network" are used interchangeably to refer to the ability to access any service provider using any access network provider without any quality of service guarantees.

Managed network IPTV services are provided with QoS guarantees, for example within a triple-play walled garden.

Open Internet IPTV services are accessed via the Internet, without QoS guarantees, for example via a portal.

In both cases, IPTV services are accessed via a service platform that provides supporting facilities for multiple service providers.

Third-party content providers supply media assets that are delivered within the IPTV services.

The Open IPTV Forum (OIPF) specification for consumer terminal function and network interfaces for access to IPTV and open Internet multimedia services consist of the following multiple parts:

- Part 1: General (this document)
- Part 2-1: Media formats
- Part 2-2: HTTP adaptive streaming
- Part 3: Content metadata
- Part 4-1: Protocols
- Part 4-2: Examples of IPTV protocol sequences
- Part 5-1: Declarative application environment
- Part 5-2: Web standards TV profile
- Part 6: Procedural application environment
- Part 7: Authentication, content protection and service protection
- Part 8: Profiles

This document (Part 1) defines general common elements and specifies the document structure, the scopes of, and relationships between the other parts, which deal with specific aspects of the OIPF consumer terminal function and network interfaces.

iTeh STANDARD PREVIEW (standards.iteh.ai)

CONSUMER TERMINAL FUNCTION FOR ACCESS TO IPTV AND OPEN INTERNET MULTIMEDIA SERVICES –

Part 1: General

1 Scope

This part of IEC 62766 defines general common elements and specifies the structure of the IEC 62766 series, the scopes of, and relationships between the other parts.

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 62766-2-1, Consumer terminal function for access to IPTV and open internet multimedia services – Part 2-1: Media formats

iTeh STANDARD PREVIEW

IEC 62766-2-2, Consumer terminal function for access to IPTV and open internet multimedia services – Part 2-2: HTTP adaptive streaming **OS. Iten. al**

IEC 62766-3, Consumer terminal function for access to IPTV and open internet multimedia services – Part 3: Content metadata i/catalog/standards/sist/30ec30f4-1cf9-4f5e-bb07-1b6b287056c9/iec-62766-1-2017

IEC 62766-4-1, Consumer terminal function for access to IPTV and open internet multimedia services – Part 4-1: Protocols

IEC 62766-4-2, Consumer terminal function for access to IPTV and open internet multimedia services – Part 4-2: Examples of IPTV protocol sequences

IEC 62766-5-1, Consumer terminal function for access to IPTV and open internet multimedia services – Part 5-1: Declarative application environment

IEC 62766-5-2, Consumer terminal function for access to IPTV and open internet multimedia services – Part 5-2: Web standards TV profile

IEC 62766-6, Consumer terminal function for access to IPTV and open internet multimedia services – Part 6: Procedural application environment

IEC 62766-7, Consumer terminal function for access to IPTV and open internet multimedia services – Part 7: Authentication, content protection and service protection

IEC 62766-8, Consumer terminal function for access to IPTV and open internet multimedia services – Part 8: Profiles

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions 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

3.1.1

3DTV

plano-stereoscopic three-dimensional television

3.1.2

access network

network infrastructure used by the access provider to deliver IPTV services to the consumer

Note 1 to entry: The access network infrastructure is used for the delivery of the content and may include quality of service management to ensure that appropriate network resources are available for the delivery of the content.

3.1.3

application iTeh STANDARD PREVIEW collection of assets and logic that together provide a service to the user (standards.iteh.ai)

Note 1 to entry: Assets and logic may reside either in an application server or in the ITF or both.

3.1.4

IEC 62766-1:2017 https://standards.iteh.ai/catalog/standards/sist/30ec30f4-1cf9-4f5e-bb07-

catch-up TV https://standards.iteh.ai/catalog/standards/sist/30ec30t4-1cf9-4f5e-bb07service that allows the end user, Using an EPG-6f7a portal, to watch linear TV programs that were previously broadcast

3.1.5

consumer domain

domain where the IPTV services are consumed

Note 1 to entry: A consumer domain can consist of a single terminal or a network of terminals and related devices for service consumption.

3.1.6

consumer network

local area network in which the IPTV terminal function is located

Note 1 to entry: Consumer networks include residential networks, wireless hot-spots, hotel networks, etc.

3.1.7 consumer end user user individual who use the IPTV services

Note 1 to entry: End users (consumers) may include, for example, members of the same family.

3.1.8 content

instance of audio, video, audio-video information, or data

3.1.9 content guide program guide

on-screen guide to scheduled content and content on demand, allowing a user to navigate, select, and discover content by time, title, channel, genre, etc.

3.1.10 content on demand CoD

service where a user can select the individual content items they want to watch from the list of available content

Note 1 to entry: Consumption of the content is started upon user request.

3.1.11

content protection

means to protect content from unauthorized usage

Note 1 to entry: Unauthorized usage includes, for example, redistribution, recording, playback, duplication, etc.

3.1.12

content provider

entity that provides content and associated usage rights to the IPTV service provider

3.1.13 Internet

iTeh STANDARD PREVIEW

worldwide, publicly accessible network of interconnected computer networks that transmit data by packet switching using the standard Internet Protocol (IP)

3.1.14

IEC 62766-1:2017

IPTV service provider://standards.iteh.ai/catalog/standards/sist/30ec30f4-1cf9-4f5e-bb07entity that offers IPTV services and which has a contractual relationship with the subscriber

3.1.15

IPTV solution solution defined by the multi-part series of IEC 62766

3.1.16 IPTV terminal function

ITF

functionality within the consumer network that is responsible for terminating the media and control for an IPTV service

3.1.17

local storage

content storage within the administrative realm of the IPTV service provider, but not in their physical environment

Note 1 to entry: For example, local storage could be a partition of storage located in the residential network and allocated to the service provider to pre-load CoD.

3.1.18

network based personal video recorder

nPVR

provision of PVR functionality whereby the content is stored in the IPTV service provider domain

Note 1 to entry: The nPVR allows a user to schedule the recording of scheduled content programs. The user can later select the content they want to watch from the recorded content.

3.1.19

portal

function of a service platform that provides an entry point to individual IPTV services to users via a GUI

3.1.20

program

segment of scheduled content with a defined beginning and end

3.1.21

push CoD

type of content on demand where the content is pre-loaded to the ITF local storage by the service provider

Note 1 to entry: The user has no direct control of what content is pre-loaded. However, the service provider may make the choice based on user preferences and habits. Content is available for direct consumption after the user selection is confirmed.

3.1.22

residential network

local network of devices (gateways and terminals) at the end user's premises

3.1.23

scheduled content

service where the play-out schedule is fixed by an entity other than the user

Note 1 to entry: The content is delivered to the user for immediate consumption.

3.1.24

service

IEC 62766-1:2017

content and applications provided by service platform providers and service providers

1b6b287056c9/iec-62766-1-2017

3.1.25

service access protection

means to protect IPTV services from unauthorized usage/access

Note 1 to entry: Such unauthorized usage or access include access from unauthorized users or a DOS attack.

3.1.26

service platform provider

entity which, based on a contractual relationship with IPTV service providers, provides the supporting functions for the delivery of IPTV services, which are not part of the IPTV service, but are required for managing its delivery

Note 1 to entry: Supporting functions for the delivery of IPTV services are, for example, charging, access control and other functions which are not part of the IPTV service.

3.1.27

service protection

means to protect contents (files or streams) during their delivery

3.1.28

session portability

ability of a given service/application to be switched from one device to another for a continuation of a session in real time

3.1.29

start-over TV

service that enables the end user to playback a linear TV program that is currently being broadcasted from its start