

Edition 1.0 2019-09

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



## Universal serial bus interfaces for data and power-Part 1-8: Common components – USB Audio 3.0 device class definition terminal types (standards.iteh.ai)

Interfaces de bus universel en série pour les données et l'alimentation électrique – https://standards.itch.ai/catalog/standards/ist/cfcd9a66-5342-45a2-9623ddbdd5c02ff5/ieg-62680-1-8-2019 Partie 1-8: Composants communs – Définition de classes de dispositifs USB Audio 3.0 pour types de terminaux





### THIS PUBLICATION IS COPYRIGHT PROTECTED Copyright © 1997-2016 USB-IF

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 IEC, or USB-IF at the respective address given below. Any questions about USB-IF copyright should be addressed to the USB-IF. Enquiries about obtaining additional rights to this publication and other information requests should be addressed to the IEC or your local IEC member National Committee.

IEC Central Office 3, rue de Varembé CH-1211 Geneva 20 Switzerland Tel.: +41 22 919 02 11 info@iec.ch www.iec.ch USB Implementers Forum, Inc. 3855 S.W. 153rd Drive Beaverton, OR 97003 United States of America Tel: +1 503-619-0426 admin@usb.org www.usb.org

#### 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 corrigendum or an amendment might have been published.

#### IEC publications search - webstore.iec.ch/advsearchform

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 It also gives information on projects, replaced and withdrawn publications.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 details all new publications released. Available online and once a month by email.

#### IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication 20180- CISPR 9 need further assistance, please contact the Customer Service Jards/sist/cfcd9a66-5342-45a2-9623-Centre: sales@iec.ch.

ddbdd5c02ff5/iec-62680-1-8-2019

#### Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.



67 000 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 CISPEL9





Edition 1.0 2019-09

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



Universal serial bus interfaces for data and power-VIEW Part 1-8: Common components – USB Audio 3.0 device class definition terminal types

IEC 62680-1-8:2019

Interfaces de bus universel en série pour les données et l'alimentation électrique – ddbdd5c02ff5/iec-62680-1-8-2019 Partie 1-8: Composants communs – Définition de classes de dispositifs USB Audio 3.0 pour types de terminaux

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 33.120.20; 33.120.30; 35.200

ISBN 978-2-8322-7245-9

Warning! Make sure that you obtained this publication from an authorized distributor. Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

 Registered trademark of the International Electrotechnical Commission Marque déposée de la Commission Electrotechnique Internationale

### INTERNATIONAL ELECTROTECHNICAL COMMISSION

### UNIVERSAL SERIAL BUS INTERFACES FOR DATA AND POWER -

### Part 1-8: Common components – USB Audio 3.0 device class definition terminal types

### 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 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. (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/cfcd9a66-5342-45a2-9623-
- 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 62680-1-8 has been prepared by technical area 18: Multimedia home systems and applications for end-user networks, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

The text of this standard was prepared by the USB Implementers Forum (USB-IF). The structure and editorial rules used in this publication reflect the practice of the organization which submitted it.

© USB-IF:1997-2016

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

CDV	Report on voting
100/3160/CDV	100/3230/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.

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.

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.

iTeh STANDARD PREVIEW

# (standards.iteh.ai)

<u>IEC 62680-1-8:2019</u> https://standards.iteh.ai/catalog/standards/sist/cfcd9a66-5342-45a2-9623ddbdd5c02ff5/iec-62680-1-8-2019

### INTRODUCTION

The IEC 62680 series is based on a series of specifications that were originally developed by the USB Implementers Forum (USB-IF). These specifications were submitted to the IEC under the auspices of a special agreement between the IEC and the USB-IF.

This standard is the USB-IF publication USB Device Class Definition for Terminal Types Release 3.0.

The USB Implementers Forum, Inc.(USB-IF) is a non-profit corporation founded by the group of companies that developed the Universal Serial Bus specification. The USB-IF was formed to provide a support organization and forum for the advancement and adoption of Universal Serial Bus technology. The Forum facilitates the development of high-quality compatible USB peripherals (devices), and promotes the benefits of USB and the quality of products that have passed compliance testing.

ANY USB SPECIFICATIONS ARE PROVIDED TO YOU "AS IS, "WITH NO WARRANTIES WHATSOEVER, INCLUDING ANY WARRANTY OF MERCHANTABILITY, NON-INFRINGEMENT, OR FITNESS FOR ANY PARTICULAR PURPOSE. THE USB IMPLEMENTERS FORUM AND THE AUTHORS OF ANY USB SPECIFICATIONS DISCLAIM ALL LIABILITY, INCLUDING LIABILITY FOR INFRINGEMENT OF ANY PROPRIETARY RIGHTS, RELATING TO USE OR IMPLEMENTATION OR INFORMATION IN THIS SPECIFICAITON.

THE PROVISION OF ANY USB SPECIFICATIONS TO YOU DOES NOT PROVIDE YOU WITH ANY LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, TO ANY INTELLECTUAL PROPERTY RIGHTS. **iTeh STANDARD PREVIEW** 

Entering into USB Adopters Agreements may, however, allow a signing company to participate in a reciprocal, RAND-Z licensing arrangement for compliant products. For more information, please see: https://www.usb.agr/decurrents.

https://www.usb.org/documents https://standards.iteh.ai/catalog/standards/sist/cfcd9a66-5342-45a2-9623-

IEC DOES NOT TAKE ANY POSITION AS TO WHETHER IT IS ADVISABLE FOR YOU TO ENTER INTO ANY USB ADOPTERS AGREEMENTS OR TO PARTICIPATE IN THE USB IMPLEMENTERS FORUM."

# UNIVERSAL SERIAL BUS DEVICE CLASS DEFINITION FOR TERMINALTER SNDARD PREVIEW (standards.iteh.ai)

<u>IEC 62680-1-8:2019</u> https://standards.iteh.ai/catalog/standards/sist/cfcd9a66-5342-45a2-9623ddbdd5c02ff5/iec-62680-1-8-2019

> Release 3.0 September 22, 2016

Copyright © 1997-2016 USB Implementers Forum, Inc. All rights reserved.

### SCOPE OF THIS RELEASE

This document is the Release 3.0 of this device class definition.

### CONTRIBUTORS

las Casulau	Advanced Misse Devices			
Joe Scanlon	Advanced Micro Devices			
Rhoads Hollowell	Apple Inc.			
Girault Jones	Apple Inc.			
Matthew X. Mora	Apple Inc.			
Tzung-Dar Tsai	C-Media Electronics, Inc.			
Brad Lambert	Cirrus Logic, Inc.			
Dan Bogard	Conexant Systems, Inc.			
Pete Burgers	DisplayLink (UK), Ltd.			
David Roh	Dolby Laboratories, Inc.			
Leng Ooi	Google, Inc.			
Pierre-Louis Bossart	Intel Corporation			
David Hines	Intel Corporation			
Abdul Rahman Ismail (Co-Chair)	Intel Corporation			
Devon Worrell	Intel Corporation			
Chandrashekhar Rao <b>iTeh</b> ST	Logitech, Anco D PREVIEW			
Terry Moore	ALogitech, Anc. D PREVIEW MCCI Corporation			
Alex Lin (S1	tamediatek.chc.iteh.ai)			
Bala Sivakumar	Microsoft Corporation			
Geert Knapen (Co-Chair & Editor)	NXP Semiconductors			
https://standards.itch.ai/catalogisMobileAudio/cfcd9a66-5342-45a2-9623-				
de	dbdd5c04115Fiælumeria0drives-2019			
	San Jose, CA 95134, USA			
	E-mail: <u>geert.knapen@nxp.com</u>			
James Goel	Qualcomm, Inc.			
Andre Schevciw	Qualcomm, Inc.			
Jin-Sheng Wang	Qualcomm, Inc.			
Morten Christiansen	Synopsys			

### **REVISION HISTORY**

Revision	Date	Filename	Description
1.0	Mar. 18, 98	Termt10.pdf	Release 1.0
2.0	May. 31, 06	Termt20 final.pdf	Release 2.0
3.0	Sep. 22, 16	Termt30.pdf	Release 3.0

### Copyright © 1997-2016 USB Implementers Forum, Inc. All rights reserved.

### INTELLECTUAL PROPERTY DISCLAIMER

A LICENSE IS HEREBY GRANTED TO REPRODUCE THIS SPECIFICATION FOR INTERNAL USE ONLY. NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE, IS GRANTED OR INTENDED HEREBY.

USB-IF AND THE AUTHORS OF THIS SPECIFICATION EXPRESSLY DISCLAIM ALL LIABILITY FOR INFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS RELATING TO IMPLEMENTATION OF INFORMATION IN THIS SPECIFICATION. USB-IF AND THE AUTHORS OF THIS SPECIFICATION ALSO DO NOT WARRANT OR REPRESENT THAT SUCH IMPLEMENTATION(S) WILL NOT INFRINGE THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS.

THIS SPECIFICATION IS PROVIDED "AS IS" AND WITH NO WARRANTIES, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE. ALL WARRANTIES ARE EXPRESSLY DISCLAIMED. USB-IF, ITS MEMBERS AND THE AUTHORS OF THIS SPECIFICATION PROVIDE NO WARRANTY OF MERCHANTABILITY, NO WARRANTY OF NON-INFRINGEMENT, NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, AND NO WARRANTY ARISING OUT OF ANY PROPOSAL, SPECIFICATION, OR SAMPLE.

IN NO EVENT WILL USB-IF, MEMBERS OR THE AUTHORS BE LIABLE TO ANOTHER FOR THE COST OF PROCURING SUBSTITUTE GOODS OR SERVICES, LOST PROFITS, LOSS OF USE, LOSS OF DATA OR ANY INCIDENTAL, CONSEQUENTIAL, INDIRECT, OR SPECIAL DAMAGES, WHETHER UNDER CONTRACT, TORT, WARRANTY, OR OTHERWISE, ARISING IN ANY WAY OUT OF THE USE OF THIS SPECIFICATION, WHETHER OR NOT SUCH PARTY HAD ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

NOTE: VARIOUS USB-IF MEMBERS PARTICIPATED IN THE DRAFTING OF THIS SPECIFICATION. CERTAIN OF THESE MEMBERS MAY HAVE DECLINED TO ENTER INTO A SPECIFIC AGREEMENT LICENSING INTELLECTUAL PROPERTY RIGHTS THAT, MAY BE INFRINGED IN THE IMPLEMENTATION OF THIS SPECIFICATION. PERSONS IMPLEMENT THIS SPECIFICATION AT THEIR OWN RISK: -62680-1-8-2019

Dolby<sup>™</sup>, AC-3<sup>™</sup>, Pro Logic<sup>™</sup> and Dolby Surround<sup>™</sup> are trademarks of Dolby Laboratories, Inc. All other product names are trademarks, registered trademarks, or service marks of their respective owners.

### Please send comments via electronic mail to audio-chair@usb.org

## TABLE OF CONTENTS

Sc	ope of	This Release	6				
Сс	ontribut	tors	6				
Re	vision	History	6				
Та	Table of Contents						
Lis	List of Tables9						
1	Intro	oduction	10				
	1.1	Scope	10				
	1.2	Related Documents	10				
	1.3	Terms and Abbreviations	10				
2	Tern	ninal Types	11				
	2.1	USB Terminal Types	11				
	2.2	Input Terminal Types	11				
	2.3	Output Terminal Types	12				
	2.4	Bi-directional Terminal Types	12				
	2.5	Telephony Terminal Types	13				
	2.6		13				
	2.7	Embedded Function Terminal Types	14				
3	Add	Embedded Function Terminal Types ing New Terminal Types	15				
	IEC 62680 1 9:2010						

<u>IEC 62680-1-8:2019</u> https://standards.iteh.ai/catalog/standards/sist/cfcd9a66-5342-45a2-9623ddbdd5c02ff5/iec-62680-1-8-2019

### © USB-IF:1997-2016

### LIST OF TABLES

Table 2-1: USB Terminal Types	11
Table 2-2: Input Terminal Types	
Table 2-3: Output Terminal Types	12
Table 2-4: Bi-directional Terminal Types	12
Table 2-5: Telephony Terminal Types	13
Table 2-6: External Terminal Types	13
Table 2-7: Embedded Terminal Types	14

# iTeh STANDARD PREVIEW (standards.iteh.ai)

<u>IEC 62680-1-8:2019</u> https://standards.iteh.ai/catalog/standards/sist/cfcd9a66-5342-45a2-9623ddbdd5c02ff5/iec-62680-1-8-2019

### INTRODUCTION

The intention of this document is to describe in detail all the Terminal Types that are supported by the Audio Device Class. This document is considered an integral part of *the Audio Device Class Specification*, although subsequent revisions of this document are independent of the revision evolution of the main *Audio Device Class Specification*. This is to easily accommodate the addition of new Terminal Types without impeding the core *Audio Device Class Specification*.

### 1.1 SCOPE

The Audio Device Class Definition applies to all devices or functions embedded in composite devices. All audio signals inside an audio function start at an Input Terminal, pass through some Units, and leave the function through an Output Terminal. Units can manipulate the signal in various ways. Terminals represent the connections of the function to the outside world.

As part of the Terminal descriptor, the **wTerminalType** field specifies the vendor's suggested use of the Terminal. For example, a pair of speakers is a more suitable target for music output than a telephone line. This feature allows a vendor to ensure that applications use the device in a consistent and meaningful way.

### 1.2 RELATED DOCUMENTS

- Universal Serial Bus Specification, 1.0 final draft revision (also referred to as the USB Specification). In particular, see Chapter 9, "USB Device Framework".
- Universal Serial Bus Device Class Definition for Audio Data Formats (referred to in this document as USB Audio Data Formats).
- ANSI S1.11-1986 standard. <u>IEC 62680-1-8:2019</u>
- AES10-2003 AES Recommended Practice for Digital Audio Engineering 42Serial Multichannel Audio Digital Interface (MADI) ddbdd5c02ff5/iec-62680-1-8-2019
- MPEG-1 standard ISO/IEC 111172-3 1993.
- MPEG-2 standard ISO/IEC 13818-3 Feb. 20, 1997.
- Digital Audio Compression Standard (AC-3), ATSC A/52 Dec. 20, 1995. (available from http://www.atsc.org)
- ANSI/IEEE-754 floating-point standard.
- ISO/IEC 958 International Standard: Digital Audio Interface and Annexes.
- ISO/IEC 1937 standard.
- ITU G.711 standard.

### TERMS AND ABBREVIATIONS

None.

1.3