

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Digital audio – Interface for non-linear PCM encoded audio bitstreams applying
IEC 60958 –
Part 1: General**

**Audionumérique – Interface pour les flux de bits audio à codage MIC non
linéaire conformément à la CEI 60958 –
Partie 1: Généralités**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2011 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.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de la CEI ou du Comité national de la CEI du pays du demandeur.

Si vous avez des questions sur le copyright de la CEI ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de la CEI de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
Web: 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.

- Catalogue of IEC publications: www.iec.ch/searchpub

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 It also gives information on projects, withdrawn and replaced publications.

- IEC Just Published: www.iec.ch/online_news/justpub

Stay up to date on all new IEC publications. Just Published details twice a month all new publications released. Available on-line and also by email.

- Electropedia: www.electropedia.org

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

- Customer Service Centre: www.iec.ch/webstore/custserv

If you wish to give us your feedback on this publication or need further assistance, please visit the Customer Service Centre FAQ or contact us:

Email: csc@iec.ch
Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00

A propos de la CEI

La Commission Electrotechnique Internationale (CEI) est la première organisation mondiale qui élabore et publie des normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications CEI

Le contenu technique des publications de la CEI est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

- Catalogue des publications de la CEI: www.iec.ch/searchpub/cur_fut-f.htm

Le Catalogue en-ligne de la CEI vous permet d'effectuer des recherches en utilisant différents critères (numéro de référence, texte, comité d'études,...). Il donne aussi des informations sur les projets et les publications retirées ou remplacées.

- Just Published CEI: www.iec.ch/online_news/justpub

Restez informé sur les nouvelles publications de la CEI. Just Published détaille deux fois par mois les nouvelles publications parues. Disponible en-ligne et aussi par email.

- Electropedia: www.electropedia.org

Le premier dictionnaire en ligne au monde de termes électroniques et électriques. Il contient plus de 20 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans les langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International en ligne.

- Service Clients: www.iec.ch/webstore/custserv/custserv_entry-f.htm

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions, visitez le FAQ du Service clients ou contactez-nous:

Email: csc@iec.ch
Tél.: +41 22 919 02 11
Fax: +41 22 919 03 00

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 1: General

Audionumérique – Interface pour les flux de bits audio à codage MIC non linéaire conformément à la CÉI 60958 – Partie 1: Généralités

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

CONTENTS

FOREWORD.....	4
INTRODUCTION (to Amendment 1)	6
1 Scope.....	7
2 Normative references	7
3 Terms, definitions, abbreviations and presentation	7
3.1 Definitions	7
3.2 Abbreviations	9
3.3 Presentation convention	9
4 General description	9
5 Interface format	10
6 Mapping of the audio bitstream on to IEC 60958	10
6.1 Coding of the bitstream	10
6.2 Burst-payload	16
6.3 Stuffing	16
7 Format of data-bursts	16
7.1 Pause data-burst.....	18
7.2 Audio data-bursts	20
7.3 Null data-burst.....	20
Annex A (normative) Channel status when IEC 60958 is used in consumer applications	22
Bibliography.....	23
Figure 1 – IEC 60958 interface format	10
Figure 2 – Data-burst format.....	12
Figure 3 – Burst-preamble	12
Figure 4 – Burst-preamble with extended preamble	14
Figure 5 – Length of the burst-payload specified by Pd.....	15
Figure 6 – Burst spacing	16
Figure 7 – Flow chart of transmission of a bitstream	17
Figure 8 – Bridging gaps in-between data-bursts with three pause data-bursts	18
Figure 9 – Data-burst format of the data-type pause	19
Figure 10 – Null data-burst	20
Table 1 – Bit allocation of the IEC 60958 frame	10
Table 2 – Bit allocation of data-burst in IEC 60958 subframes	11
Table 3 – Burst-preamble words	13
Table 4 – Bit map of burst-preambles	13
Table 5 – Fields of burst-info	13
Table 6 – Burst-preamble words	14
Table 7 – Fields of Pe (extended data-type).....	14

Table 8 – Fields of Pf..... 14

Table 9 – Values of data-type-dependent info of the pause data-burst..... 20

Table 10 – Burst-payload of pause data-burst..... 20

Table 11 – Fields of a null data-burst..... 21

Table A.1 – Allocation of the channel status bits 22

Withdrawn

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**DIGITAL AUDIO –
INTERFACE FOR NON-LINEAR PCM ENCODED
AUDIO BITSTREAMS APPLYING IEC 60958 –****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.
- 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.

This consolidated version of IEC 61937-1 consists of the second edition (2007) [documents 100/1101/CDV and 100/1192/RVC] and its amendment 1 (2011) [documents 100/1810/CDV and 100/1883/RVC]. It bears the edition number 2.1.

The technical content is therefore identical to the base edition and its amendment and has been prepared for user convenience. A vertical line in the margin shows where the base publication has been modified by amendment 1. Additions and deletions are displayed in red, with deletions being struck through.

International Standard IEC 61937-1 has been prepared by technical area 4: Digital system interfaces and protocols, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

This second edition of IEC 61937-1 cancels and replaces the first edition published in 2000. This edition contains the following significant technical changes with respect to the previous edition.

- a) The data-type field in Pc is expanded from bit 0-4 to bit 0-6.
- b) A new additional definition of Pd is specified.
- c) The numbers of times for symbol frequency are changed to refer to each part of IEC 61937.
- d) The requirement for burst spacing is changed.

The bilingual version (2011-04) corresponds to the monolingual English version, published in 2007-01.

The French version of this standard has not been voted upon.

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

The list of all the parts of IEC 61937, under the general title *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958* can be found on the IEC website.

The committee has decided that the contents of the base publication and its amendments 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.

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 publication using a colour printer.

INTRODUCTION (to Amendment 1)

The revision of IEC 61937-1 (2007) has become necessary to specify the additional definition of length-code. Amendment 1 contains the following significant technical changes with respect to the base publication (IEC 61937-1, second edition).

- New 8-bytes unit definition of length-code is added.
- An erratum in Clause 7 as for indication of the burst-payload type is corrected.

Withdrawn