

This is a preview - [click here to buy the full publication](#)



IEC 60958-3

Edition 3.0 2006-05

INTERNATIONAL STANDARD

**Digital audio interface –
Part 3: Consumer applications**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 33.160.01

ISBN 2-8318-8670-8

CONTENTS

FOREWORD	5
1 Scope	7
2 Normative references	7
3 Terms and definitions	7
4 Interface format	7
5 Channel status	8
5.1 General	8
5.2 Application	8
5.3 Copyright management guidelines for consumer application of the digital audio interface	14
6 User data	18
6.1 General	18
6.2 Application	18
6.3 Information for synchronization	22
Annex A (normative) Application of the digital audio interface in the compact disc digital audio system	25
Annex B (normative) Application of the digital interface in the 2-channel PCM encoder/decoder	27
Annex C (normative) Application of the digital interface in the 2-channel digital audio tape recorder in the consumer mode	28
Annex D (normative) Application of the digital interface in laser optical digital audio systems for which no other category code is defined	32
Annex E (normative) Application of the digital interface in a digital audio mixer in the consumer mode	33
Annex F (normative) Application of the digital interface with a sampling rate converter in the consumer mode	34
Annex G (normative) Application of the digital interface with a digital sound sampler in the consumer mode	35
Annex H (normative) Application of the digital interface in a digital broadcast receiver (Japan) in the consumer mode	36
Annex J (normative) Application of the digital interface in a digital broadcast receiver (Europe) in the consumer mode	37
Annex K (normative) Application of the digital interface in a digital broadcast receiver (USA) in the consumer mode	38
Annex L (normative) Application of the digital interface for electronic software delivery in the consumer mode	39
Annex M (normative) Application of the digital interface in the digital compact cassette system in the consumer mode	40
Annex N (normative) Application of the digital interface in the mini-disc system in the consumer mode	45
Annex O (normative) Application of the digital interface in a digital sound processor in the consumer mode	46

Annex P (normative) Application of the digital interface in the digital versatile disc system (DVD) in the consumer mode	47
Annex Q (informative) Use of original sampling frequency, sampling frequency and clock accuracy	48
Annex R (normative) Application of the digital interface in magnetic disc digital audio systems in the consumer mode	50
Annex S (normative) Explanations of category code implementation	51
Annex T (informative) Application of the digital audio interface for synchronization of audio, video and multi-media equipments	56
Bibliography.....	61
Figure 1 – Example of message structure using information units	19
Figure 2 – First UI contents.....	20
Figure 3 – Second UI contents.....	20
Figure 4 – Third UI contents	21
Figure 5 – User information.....	21
Figure 6 – SMPTE time code information	22
Figure 7 – LTC information alignment	22
Figure 8 – VITC information alignment.....	23
Figure 9 – Latency information.....	23
Figure 10 – Latency information alignment.....	24
Figure C.1 – Example of different combinations of start-ID and shortening-ID	31
Figure Q.1 – Player and interface model.....	48
Figure S.1 – Multi-media player	51
Figure S.2 – Home-recorded medium player	52
Figure S.3 – Direct monitoring	52
Figure S.4 – Monitoring after recording	53
Figure S.5 – Integrated product	53
Figure S.6 – Digital/digital converter	54
Figure S.7 – Integrated product including digital/digital converter.....	54
Figure S.8 – Integrated product including magnetic disc recorder	55
Figure T.1 – Lip-sync system model.....	56
Figure T.2 – Lip-sync compensation	57
Figure T.3 – Time-code transmission	57
Figure T.4 – Latency parameter transmission	58
Figure T.5 – Latency parameter transmission with <i>TLV</i>	58
Figure T.6 – Example of latency parameter transmission	59
Figure T.7 – Another example for solving lip-sync problems.....	60

Table 1– Channel status general format for consumer use	9
Table 2 – Mode 0 channel status format for consumer use.....	11
Table 3 – Category code groups	15
Table 4 – Category code groups for laser optical products	16
Table 5 – Category code groups for digital/digital converter and signal-processing products	16
Table 6 – Category code groups for magnetic tape or magnetic disc based products	16
Table 7 – Category code groups for broadcast reception of digitally encoded audio with/without video signals	17
Table 8 – Category code groups for musical instruments, microphones and other sources that create original sound	17
Table 9 – Category code groups for A/D converters for analogue signals without copyright information	17
Table 10 – Category code groups for A/D converters for analogue signals with copyright information	18
Table 11 – Category code groups for solid-state memory-based products	18
Table A.1 – Example of 2-channel compact disc format	26
Table C.1 – Use of Cp-bit, L-bit and category code for DAT	28
Table C.2 – User data application in the DAT system.....	30
Table M.1 – Layout of message number “000000”	41
Table M.2 – Deck status codes	42
Table M.3 – ITTS packet extended message example.....	43
Table Q.1 – Term definitions.....	48
Table Q.2 – Cases	49
Table Q.3 – Example	49

INTERNATIONAL ELECTROTECHNICAL COMMISSION

DIGITAL AUDIO INTERFACE –

Part 3: Consumer applications

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 provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
- 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 60958-3 has been prepared by IEC technical committee 100: Audio, video and multimedia systems and equipment.

This third edition of IEC 60958-3 cancels and replaces the second edition published in 2003 and constitutes a technical revision.

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

- Electrical and optical requirements are removed from IEC 60958-3; they should be specified in IEC 60958-1. The third edition of IEC 60958-1 will include these.

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

CDV	Report on voting
100/1009/CDV	100/1070/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.

The list of all the parts of the IEC 60958 series, under the general title *Digital audio interface*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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.

DIGITAL AUDIO INTERFACE – Part 3: Consumer applications

1 Scope

This part of IEC 60958 specifies the consumer application of the interface for the inter-connection of digital audio equipment defined in IEC 60958-1.

NOTE When used in a consumer digital processing environment, the interface is primarily intended to carry stereophonic programmes, with a resolution of up to 20 bits per sample, an extension to 24 bits per sample being possible.

2 Normative references

The following referenced documents are indispensable for the application 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 60841:1988, *Audio recording – PCM encoder/decoder system*

IEC 60908:1999, *Audio recording – Compact disc digital audio system*

IEC 60958-1:2004, *Digital audio interface – Part 1: General*

IEC 61119-1:1992, *Digital audio tape cassette system (DAT) – Part 1: Dimensions and characteristics*

IEC 61119-6:1992, *Digital audio tape cassette system (DAT) – Part 6: Serial copy management system*

IEEE 1394:2004, *IEEE standard for high-performance serial bus bridges*