SLOVENSKI STANDARD
oSIST prEN IEC 60958-5:2020

01-oktober-2020

Digitalni avdio vmesnik - 5. del: Izboljšanje potrošniških aplikacij (TA 20)

Digital audio interface - Part 5: Consumer application enhancement (TA 20)

Ta slovenski standard je istoveten z: **prEN IEC 60958-5:2020**

ICS:

33.160.30	Avdio sistemi	Audio systems
35.200	Vmesniška in povezovalna oprema	Interface and interconnection equipment

oSIST prEN IEC 60958-5:2020 **en,fr,de**

100/3449/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER:	
IEC 60958-5 ED1	
DATE OF CIRCULATION:	CLOSING DATE FOR VOTING:
2020-08-07	**2020-10-30**
SUPERSEDES DOCUMENTS:	
100/3321/CD, 100/3384/CC	

IEC TA 20 : ANALOGUE AND DIGITAL AUDIO	
SECRETARIAT: Japan	SECRETARY: Mr Gen Ichimura
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.

FUNCTIONS CONCERNED:

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☒ SUBMITTED FOR CENELEC PARALLEL VOTING ☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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TITLE:

Digital audio interface - Part 5: Consumer application enhancement (TA 20)

PROPOSED STABILITY DATE: 2023

NOTE FROM TC/SC OFFICERS:

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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DIGITAL AUDIO INTERFACE –

Part 5: Consumer application enhancement

FOREWORD

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International Standard IEC 60958-5 has been prepared by Technical Area 20: Analogue and digital audio, of IEC Technical Committee 100: Audio, video and multimedia systems and equipment.

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

FDIS	Report on voting
XX/XX/FDIS	XX/XX/RVD

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.

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- withdrawn,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.

The National Committees are requested to note that for this document the stability date is 20XX..

THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE DELETED AT THE PUBLICATION STAGE.

INTRODUCTION

IEC 60958-3 edition 1.0 was released in 1999 specifying the consumer applications of the interface for the inter-connection of digital audio equipment defined in IEC 60958-1. The applications have enhanced their quality including multichannel modes, high-precision bit length, multi-stream modes. These enhancements require a new part of IEC 60958 appropriately keeping backward compatibility with IEC 60958-3 and providing a new enhanced digital audio interface.

DIGITAL AUDIO INTERFACE –

Part 5: Consumer application enhancement

1 Scope

This part of IEC 60958 enhances the consumer application of the interface for the interconnection of digital audio equipment defined in IEC 60958-1 and IEC 60958-3 introducing:

– multichannel;
– multi-stream;
– high-resolution;
– multimedia extension;
– related applications.

NOTE: IEC 60958-3 specifies consumer application to carry stereophonic programmes with a resolution of up to 24 bits per sample. This part of IEC 60958 enhances them up to 64 channels programs, 64 bits per sample and two simultaneous streams.

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 60958-1:2021 (under revision), *Digital audio interface – Part 1: General*

IEC 60958-3:2021 (under revision), *Digital audio interface – Part 3: Consumer applications*

IEC 61883-6: 2014, *Consumer Audio/Video Equipment – Digital Interface – Part 6: Audio and music data transmission protocol*

IEC 62574:2020, *Audio, video and multimedia systems – General channel assignment of multichannel audio*

ITU-R BS.2094-1: 2017, *Common definitions for the audio definition model*

ITU-R BS.775-3: 2012, *Multichannel stereophonic sound system with and without accompanying picture*

ITU-R BS.2051-2: 2018, *Advanced sound system for programme production*

ISO/IEC 23001-8: 2016, *Information technology — MPEG systems technologies — Part 8: Coding independent code points, AMENDMENT 1: Additional audio code points*

3 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
one-bit audio
one-bit length audio data stream

Note 1 to entry: One-bit audio data stream can be directly played back through the analogue low pass filter bit by bit (MSB first).

[SOURCE: IEC 61883-6: 2014, 12.1.3]

3.2
high-precision multi-bit linear audio
linear PCM audio data longer than 25 bits length per sample

Note 1 to entry: This part of IEC 60958 supports 32- and 64-bits length.

[SOURCE: IEC 61883-6: 2014, 8.2.8]

3.3
sampling frequency
frequency of the samples representing an audio signal.

Note 1 to entry: When more than one signal is transmitted through the same interface, the sampling frequencies are identical.

[SOURCE: IEC 60958-1: 2021]

3.4
audio sample word
value of a digital audio sample. Representation is linear in 2's complement binary form.

Note 1 to entry: Positive numbers correspond to positive analogue voltages at the input of the analogue-to-digital converter (ADC).

[SOURCE: IEC 60958-1: 2021]

3.5
channel status
data carrying, in a fixed format, information associated with each main data field channel, which is decodable by any interface user.

Note 1 to entry: IEC 60958-3 specifies Mode 0 channel status format for digital audio equipment for consumer use.

EXAMPLE 1 Length of audio sample words

EXAMPLE 2 Sampling frequency

[SOURCE: IEC 60958-1: 2021]

3.6
preamble
specific patterns used for synchronization.

Note 1 to entry: There are three different preambles: “B”; “M”; and “W”.

[SOURCE: IEC 60958-1: 2021]

3.7
sub-frame
fixed structure used to carry information

[SOURCE: IEC 60958-1: 2021]

3.8
frame
sequence of two successive and associated sub-frames

[SOURCE: IEC 60958-1: 2021]

3.9
block
group of 192 consecutive frames.

Note 1 to entry: The start of a block is designated by a special sub-frame preamble.

[SOURCE: IEC 60958-1: 2021]

3.10
channel number
number that shows channel order in two channel operation mode

[SOURCE: IEC 60958-1: 2021]

3.11
channel label ID
label of ID

[SOURCE: IEC 62574: 2020]

3.11.1
multichannel number
number that identifies multichannel addressing

Note 1 to entry: Same as IEC 62574 channel number

[SOURCE: IEC 62574: 2019, 4.3]

3.12
multichannel group
group composed of one or two multichannel subgroups

3.13
multichannel count
count of channels in a multichannel group

3.14
multichannel subgroup
subgroup, in a multichannel group, composed of several multichannel

Note 1 to entry: Multichannel subgroup A is set according to multichannel configuration.

Note 2 to entry: Multichannel subgroup B is set according to multichannel map.

3.15
multichannel configuration
configuration of multichannel addressing

3.16
multichannel order
order of multichannel in a multichannel group

3.17
multichannel map
map of multichannel selections

4 Interface format

The interface format as defined in IEC 60958-1 and IEC 60958-3 shall be used unless otherwise specified in this part of IEC 60958.

5 Operation modes

5.1 General

IEC 60958-1 specifies single and two channel operation modes. This part of IEC 60958 introduces several new operation modes based on the same interface format of IEC 60958-1 without pre-emphasis function as defined in IEC 60958-3. Channel status information identifies these modes in operation. This part of IEC 60958 shares the information with IEC 60958-1 and IEC 60958-3 and specifies new usages.

5.2 Multichannel linear PCM operation mode

In multichannel linear PCM operation mode, the samples taken from multichannel linear PCM are transmitted by time multiplexing in consecutive sub-frames.

A multichannel group is composed of several multichannel by consecutive frames. The number of multichannel included in the group is identified by multichannel count of channel status bit 44 to 47. The group starts with preamble “B” and repeats itself with no break in the block without un-grouped frame. The group is divided into one or two multichannel subgroups by multichannel configuration of channel status bit 49 to 60 and multichannel map of channel status bit 64 to 165. The subgroup is composed of some specific multichannel by consecutive sub-frames. Each multichannel within the multichannel subgroup B is re-numbered according to multichannel number of channel status bit 64 to 165. Each channel carries consecutive audio sample word.

An example is showed in Figure 1 and Table 1. The multichannel group is composed of eight multichannel. This number of eight is identified by multichannel count value of “1110”. The multichannel subgroup A is composed of three multichannel identified by multichannel configuration value of “100001010000” including FrontLeft channel, FrontRight channel and FrontCenter channel given in ITU-R BS.2094-1. The multichannel subgroup B is composed of 77th multichannel (channel label ID name of HFL) and 78th multichannel (channel label ID name of HFR) by setting the channel status bit 77 to “1” and the channel status bit 78 to “1”. Channels of multichannel order 6, 7 and 8 are not used in this example.