IEC/TS 62436

TECHNICAL
SPECIFICATION

Guideline for implementation of copy controlled multimedia interface

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GUIDELINE FOR IMPLEMENTATION OF
COPY CONTROLLED MULTIMEDIA INTERFACE

FOREWORD

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Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC 62436, which is a technical specification, has been prepared by technical area 4: Digital system interfaces and protocols, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
100/1231/DTS	100/1334/RVC

Full information on the voting for the approval of this technical specification 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 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

• transformed into an International standard,
• reconfirmed,
• withdrawn,
• replaced by a revised edition, or
• amended.

A bilingual version of this publication may be issued at a later date.

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(standards.iteh.ai)

IEC TS 62436:2008
https://standards.iteh.ai/catalog/standards/sist/9527d163-562c-4334-a26d-
51a374b3efb2/iec-ts-62436-2008

INTRODUCTION

Various IEC standards have included methods for transmission of copy control information at the time when they were developed. For instance, IEC 61119-6 defines copyright status bit for DAT recorder, and IEC 60958-3 defines the L bit that is specified in IEC 61119-6.

The current consumer products become more complex and use the many IEC standards in one product.

For instance, a DVD player produces its high quality audio signal securely through IEC 61883-6, it also performs CD quality audio signal through IEC 60958 or IEC 61937, and the DVD player can produce audio signals through the other interface using IEC 60958 conformant data format, defined in IEC 61883-6.

Another example is a digital video recorder with hard disk drive or DVD that produces audio signal to the other audio recorder using IEC 60958 or IEC 61883-6.

These consumer products use many interface standards and should give copy control information and other information appropriately.

This guideline describes

– the relation between digital interface standards,
– the relation of copy control information and related information,
– the method for information implementation.

GUIDELINE FOR IMPLEMENTATION OF
COPY CONTROLLED MULTIMEDIA INTERFACE

1 Scope

This Technical Specification gives a guideline for the implementation of the audio and video interfaces with copy control information.

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 60958 (all parts), *Digital audio interface*

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

IEC 60958-3, *Digital audio interface – Part 3: Consumer applications*

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

IEC 61880-2, *Video systems (525/60) – Video and accompanied data using the vertical blanking interval – Analogue interface – Part 2: 525 progressive scan system*

IEC 61883-6, *Consumer audio/video equipment – Digital interface – Part 6: Audio and music data transmission protocol*

IEC 61909, *Audio recording – Minidisc system*

IEC 61937 (all parts), *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958*

IEC 61937-1, *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 1: General*

IEC 61937-2, *Digital audio – Interface for non-linear PCM encoded audio bitstreams applying IEC 60958 – Part 2: Bust-info*

IEC 62375, *Video systems (625/50 progressive) – Video and accompanied data using the vertical blanking interval – Analogue interface*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

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

3.1.1
IEC 60958 conformant data format
data format that has conformance with the data protocol defined in of IEC 60958

3.2 Abbreviations

SCMS   serial copy management system, for copy management of one generation

CCI   copy control information

CGMS-A   copy generation management system on analogue video interface

4 Relation between interface standards and specifications

4.1 IEC standards with copy control information

IEC standards that have information of copy control are described in Table 1, these standards are the subjects of this technical specification.

Table 1 – IEC standards with copy control information

IEC standard	Description of copy control information
IEC 60958-3	Digital audio interface, contains SCMS information
IEC 61937-1, IEC 61937-2, IEC 61937-3, IEC 61937-4, IEC 61937-5, IEC 61937-6, IEC 61937-7, IEC 61937-8, IEC 61937-9	Digital audio interface, contains SCMS information (note 1)
IEC 61883-6	Digital audio interface, contains SCMS and Audio CCI (note 2)
IEC 61119-6	Digital audio tape cassette system, defines SCMS
IEC 61909	Minidisc system, describes SCMS
IEC 61880-2	525 progressive video system, defines VBI with CGMS-A
IEC 62375	625 progressive video system, defines VBI with CGMS-A
NOTE 1 IEC 61937 does not describe SCMS, that come from the structure of IEC 60958. NOTE 2 SCMS is contained in the IEC 60958 conformant data format.	

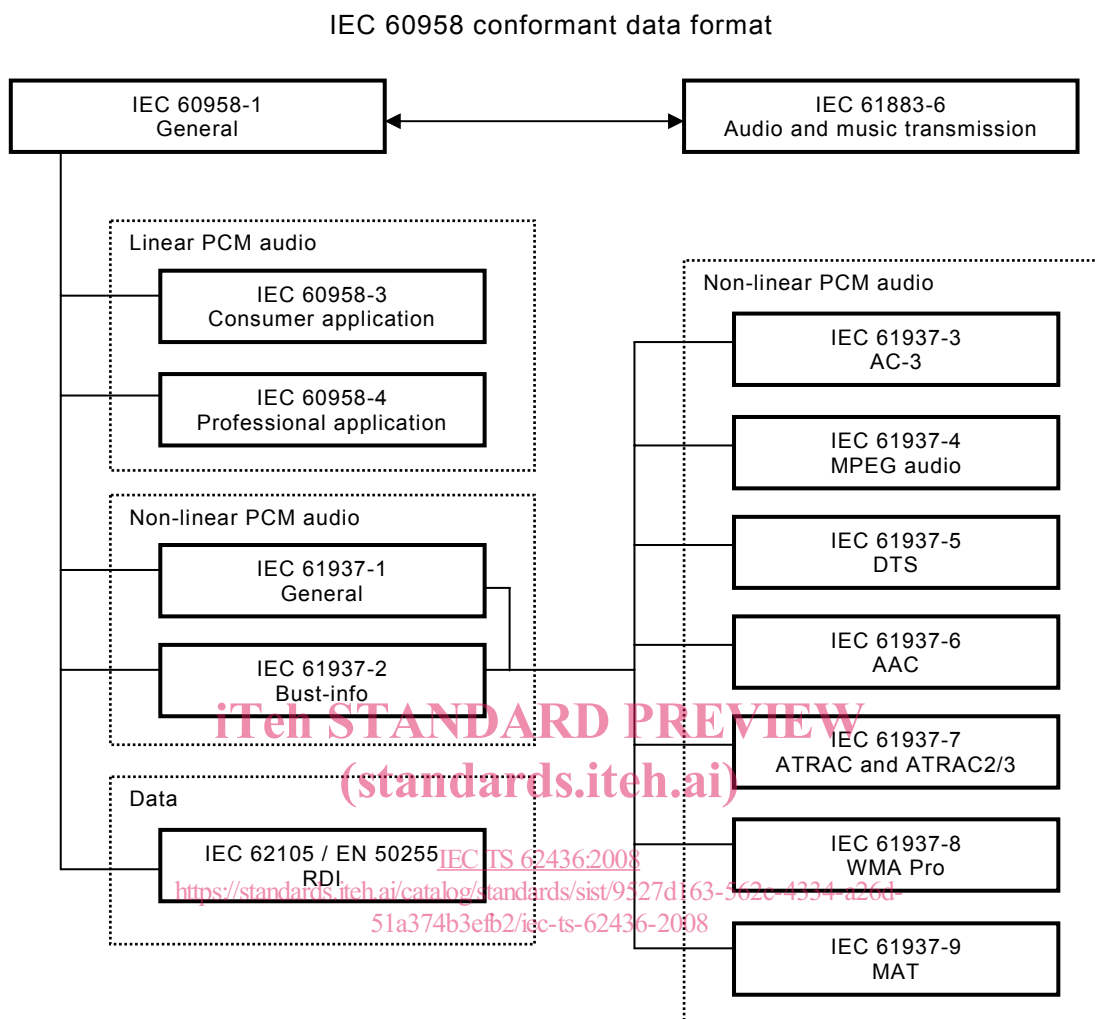### 4.2 Relation between IEC standards

Figure 1 shows the relation between digital audio interface standards IEC 60958, IEC 61937 and IEC 61883-6.

IEC 60958-1 is the fundamental standard of these related standards, and it defines the basic structure. The application standards derived form IEC 60958-1 for the linear PCM audio data transmission are IEC 60958-3 for consumer use and IEC 60958-4 for professional use.

IEC 61937 is derived from IEC 60958, it specifies the data packet structure based on IEC 60958-1, it is mainly for the transmission of compressed audio data. IEC 61937-1 and IEC 61937-2 specify the general structure. In part 1 and part 2 of IEC 61937, transmission method for the specific compressed audio format are specified from part 3 to part 9. Also IEC 62105 specifies the receiver data transmission using IEC 61937-1 structure.

IEC 61883-6 specifies IEC 60958 conformant data format, this format defines IEC 60958-1 structure in IEC 61883-6. IEC 60958 conformant data format can transmit IEC 60958-1 and all of its derivative standards.

IEC 60958 conformant data format can be used in any other interface specification applying the definition of the structure of IEC 60958-1.

IEC 60958 conformant data format

IEC   195/08

Figure 1 – The relationship between IEC standards

4.3   IEC 60958 conformant data format

4.3.1   The structure defined in IEC 61883-6

IEC 60958 conformant data format is defined by IEC 61883-6, this format defines the use of the frame format and sub-frame format defined in IEC 60958-1 as it is.

Figure 2 shows the sub-frame format of IEC 60958 defined in IEC 60958-1. Figure 3 shows IEC 60958 conformant data format defined in IEC 61883-6. This defines the sync preamble in 2 bits as described in Table 2. The 32 bit data of IEC 61883-6 consists of an 8 bit label and 24 bit data that are called AM824 data, and the label from 00_{16} to $3F_{16}$ are assigned to IEC 60958 conformant data format including the sync preambles and the bits V, U, C and P.
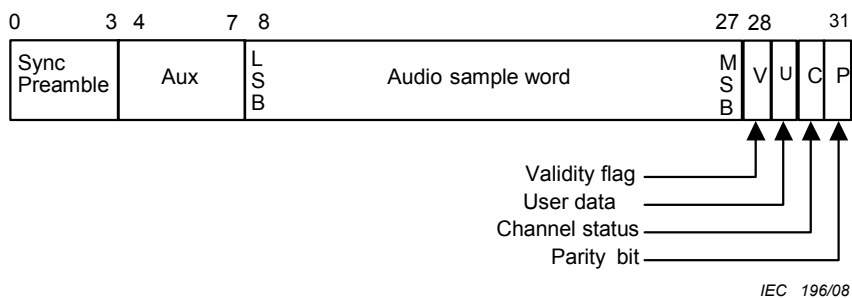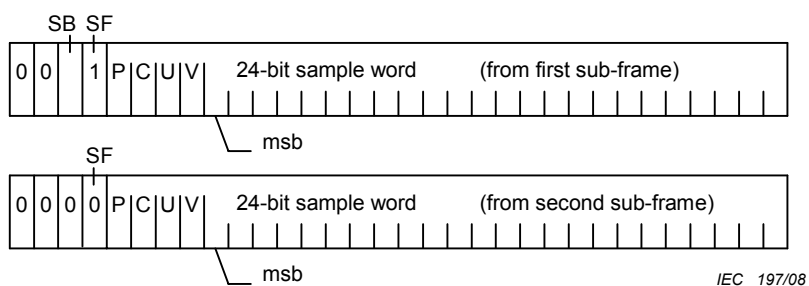
IEC 196/08

Figure 2 – Sub-frame format

IEC 197/08

Figure 3 – IEC 60958 conformant data format

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Table 2 – IEC 60958 conformant data format

(standards.iteh.ai)

SB (Start of Block) and SF (Start of Frame) definitions				
LABEL	SB	SF	Description	Equivalent IEC 60958 preamble codes
00_{16} - $0F_{16}$	0	0	Second subframe of IEC 60958 frames 0 to 191	W,Y
10_{16} - $1F_{16}$	0	1	First subframe of IEC 60958 frames 1 to 191	M,X
20_{16} - $2F_{16}$	1	0	Reserved	-
30_{16} - $3F_{16}$	1	1	First subframe of IEC 60958 frame 0	B,Z

Figure 4 shows the logical structure of IEC 60958 conformant data format of IEC 61883-6 that enables to transmit all of IEC 60958-1 derivative standards as Figure 1 shows.