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BSI Standards Publication

Guideline for synchronization of audio and video

Part 2: Methods for synchronization of audio and video systems

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National foreword

This Published Document is the UK implementation of IEC TS 62312-2:2018. It supersedes DD IEC/TS 62312-2:2007, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EPL/100, Audio, video and multimedia systems and equipment.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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Compliance with a British Standard cannot confer immunity from legal obligations.

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Part 2: Methods for synchronization of audio and video systems

INTERNATIONAL
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COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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GUIDELINE FOR SYNCHRONIZATION OF AUDIO AND VIDEO –

Part 2: Methods for synchronization of audio and video systems

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 62312-2, which is a technical specification, has been prepared by technical area 11: Quality for audio, video and multimedia systems, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

This second edition cancels and replaces the first edition published in 2007. This edition constitutes a technical revision.

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

a) fingerprint is newly introduced;
b) addition of the synchronization information from fingerprint (SMPTE spec.);
c) addition of the method for using the above information.

The text of this Technical Specification is based on the following documents:

Draft TS	Report on voting
100/3049/DTS	100/3106/RVDTS

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

The list of all the parts of IEC 62312, published under the general title *Guideline for synchronization of audio and video*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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.

INTRODUCTION

Audio, video and multimedia systems and equipment have begun to use digital technologies. Digital systems or equipment may cause delay of audio and video signals because digital signal processing causes latency and delay. The unevenness of the delay between audio and video can cause synchronization problems.

For instance, a digital broadcasting system uses signal compression of audio and video. A receiver has signal decoders, and this can cause unevenness of the delay between audio and video. Digital video signal processing of the display causes a significant delay in the reproduction time of the video image. Another example is an audio-video system consisting of a digital media player, an audio amplifier and a display. A digital media player outputs audio and video signals separately to the amplifier and display through digital interfaces. This may cause synchronization problems of audio and video when the processing time of each piece of equipment is different.

To solve synchronization problems of audio and video reproduction on the user side, this document gives guidelines for general methods for the synchronization of audio and video.

GUIDELINE FOR SYNCHRONIZATION OF AUDIO AND VIDEO –

Part 2: Methods for synchronization of audio and video systems

1 Scope

The IEC 62312 series gives guidelines for methods of synchronization of audio and video.

This part of IEC 62312 describes the system model and general methods for the synchronization of audio and video. The methods exclude the synchronization of the signal source and the spatial delay of audio reproduction.

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, *Digital audio interface – Part 1: General*

IEC 60958-3:2006, *Digital audio interface – Part 3: Consumer applications*
IEC 60958-3:2006/AMD2:2015

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

SMPTE 12M, *Television, Audio and Film – Time and Control Code*

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
latency
inevitable delay of the signal that is caused by its principle or unavoidable signal processing

Note 1 to entry: Signal encoding and decoding, signal compression and de-compression, and signal transmission through interfaces cause latency.

3.2
delay
general meaning of delay other than latency, including delay that is caused by functional signal processing and delay that is set intentionally

Note 1 to entry: The term "delay" is sometimes used as to meaning latency. In this technical specification, "delay" is defined as delay other than latency. Functional signal processing causes delay or delay is set intentionally.