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Information technology — Multimedia application format (MPEG-A) —

Part 4: Musical slide show application format

Technologies de l'information — Format pour application multimédia (MPEG-A) —

Partie 4: Format pour application de présentation musicale de diapositives

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 23000-4 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

This second edition cancels and replaces the first edition which has been technically revised.

ISO/IEC 23000 consists of the following parts, under the general title *Information technology — Multimedia application format (MPEG-A)*:

— *Part 1: Purpose for multimedia application formats*

— *Part 2: MPEG music player application format*

— *Part 3: MPEG photo player application format*

— *Part 4: Musical slide show application format*

— *Part 5: Media streaming application format*

— *Part 6: Professional archival application format*

— *Part 7: Open access application format*

— *Part 8: Portable video application format*

— *Part 9: Digital Multimedia Broadcasting application format*

— *Part 10: Video surveillance application format*

— *Part 11: Stereoscopic video application format*

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Introduction

ISO/IEC 23000 (also known as “MPEG-A”) is an MPEG standard that supports a fast track to standardization by selecting readily tested and verified tools taken from the MPEG body of standards and combining them to form an AF (Application Format). If a needed piece of technology is not provided within the MPEG, then additional technologies originating from other organizations can be included by reference in order to facilitate the envisioned application format.

The existing music player application format (ISO/IEC 23000-2) was designed as a format for enhanced MP3 players. It contains MP3 audio data, MPEG-7 metadata and an optional JPEG still image for cover art. The photo player application format (ISO/IEC 23000-3) is a format for digital photo library applications. It contains JPEG still images and associated MPEG-7 metadata.

The musical slide show application format (ISO/IEC 23000-4) is a richer multimedia format that builds on top of the music player and the photo player application format. This format supports the use of MP3 audio data along with multiple JPEG images in the form of a slide show presentation, and it is designed to render timed text data for annotations or lyrics. The format also features animation effects for image transitions and synchronization of media data.

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Information technology — Multimedia application format (MPEG-A) —

Part 4:
Musical slide show application format

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1 Scope

This part of ISO/IEC 23000 specifies a file format for multimedia applications that feature MP3 audio playback and image slide show presentation. It also defines other technical features such as timed text (e.g. song lyrics) and animation (image transition effect).

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.

ISO/IEC 14496-3:2005, *Information technology — Coding of audio-visual objects — Part 3: Audio*

ISO/IEC 14496-12:2005, *Information technology — Coding of audio-visual objects — Part 12: ISO base media file format*

ISO/IEC 14496-14:2003, *Information technology — Coding of audio-visual objects — Part 14: MP4 file format*

ISO/IEC 14496-20:2006, *Information technology — Coding of audio-visual objects — Part 20: Lightweight Application Scene Representation (LASeR) and Simple Aggregation Format (SAF)*

ISO/IEC 15938-2, *Information technology — Multimedia content description interface — Part 2: Description definition language*

ISO/IEC 15938-5:2003, *Information technology — Multimedia content description interface — Part 5: Multimedia description schemes*

ISO/IEC 15938-10, *Information technology — Multimedia content description interface — Part 10: Schema definition*

ISO/IEC 21000-2, *Information technology — Multimedia framework (MPEG-21) — Part 2: Digital Item Declaration*

ISO/IEC 21000-4, *Information technology — Multimedia framework (MPEG-21) — Part 4: Intellectual Property Management and Protection Components*

ISO/IEC 21000-5, *Information technology — Multimedia framework (MPEG-21) — Part 5: Rights Expression Language*

ISO/IEC 21000-17, *Information technology — Multimedia framework (MPEG-21) — Part 17: Fragment Identification of MPEG Resources*

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3GPP TS 26.245, *Transparent end-to-end Packet switched Streaming Service (PSS); Timed text format*, V7.0.0, 2007-06-21

3 Terms and definitions

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

3.1
slide show track
video track consisting of timed JPEG images

3.2
animation effect
simple image filtering effects applied on image transitions

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4 Overview of MPEG Standards for Musical slide show application format

4.1 MPEG-1 Layer 3

ISO/IEC 11172-3:1993 specifies MPEG-1 Audio [1]. From that specification, MPEG-1 Layer 3 (or MP3) is one of the most widely deployed MPEG audio standards ever. Its wide appeal is due to both its good compression performance and its simplicity of implementation. The vast majority of compressed music archives use MP3 encoding.

One aspect of the simplicity of Layer 3 is that it specifies a self-synchronizing transport, making it amenable to both storage in a computer file and transmission over a channel without byte framing. In the context of transmission channels, Layer 3 can operate over a constant-rate isochronous link, and has constant-rate headers (as does Layer 1 and 2). However Layer 3 is an instantaneously-variable-rate coder, which adapts to the constant-rate channel by using a “bit buffer” and “back pointers.” Each of the headers signals the start of another block of audio signal, however due to the Layer 3 syntax, the data associated with that next block of audio signal may be in a prior segment of the bit stream, pointed to by the back pointer (see Figure 1, specifically the curved arrow pointing to main_data_begin). We note that this is in contrast to the MPEG-4 view of data stream segmentation, in which one access unit contains all information necessary to decode one segment of audio.

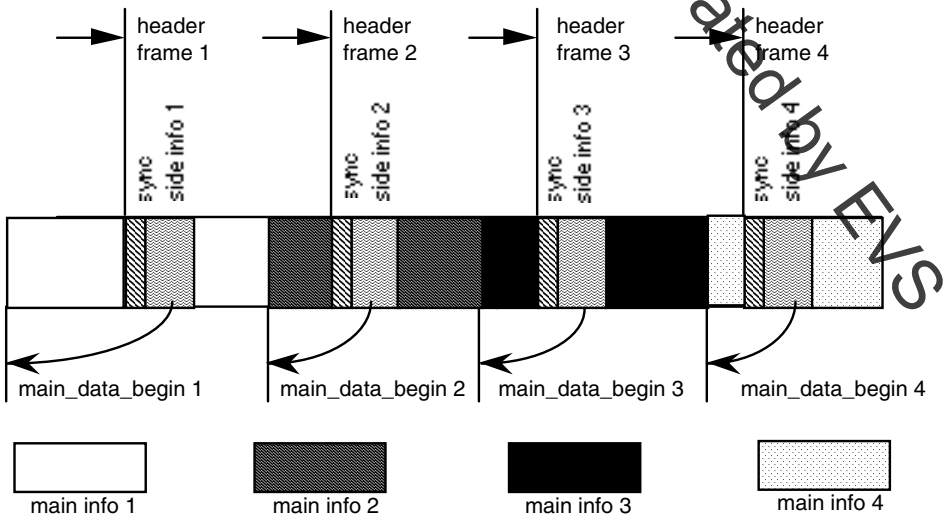

Figure 1 — Layer 3 bit stream organization

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