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Information technology — Coding of audio-visual objects —

Part 23: Symbolic Music Representation

Technologies de l'information — Codage des objets audiovisuels —

Partie 23: Représentation symbolique de la musique

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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 14496-23 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

ISO/IEC 14496 consists of the following parts, under the general title *Information technology — Coding of audio-visual objects*:

— *Part 1: Systems*

— *Part 2: Visual*

— *Part 3: Audio*

— *Part 4: Conformance testing*

— *Part 5: Reference software*

— *Part 6: Delivery Multimedia Integration Framework (DMIF)*

— *Part 7: Optimized reference software for coding of audio-visual objects* [Technical Report]

— *Part 8: Carriage of ISO/IEC 14496 contents over IP networks*

— *Part 9: Reference hardware description* [Technical Report]

— *Part 10: Advanced Video Coding*

— *Part 11: Scene description and application engine*

— *Part 12: ISO base media file format*

— *Part 13: Intellectually Property Management and Protection (IPMP) extensions*

— *Part 14: MP4 file format*

— *Part 15: Advanced Video Coding (AVC) file format*

— *Part 16: Animation Framework eXtension (AFX)*

— *Part 17: Streaming text format*

— *Part 18: Font compression and streaming*

— *Part 19: Synthesized texture stream*

— *Part 20: Lightweight Application Scene Representation (LASeR) and Simple Aggregation Format (SAF)*

— *Part 21: MPEG-J Graphics Framework eXtensions (GFX)*

— *Part 22: Open Font Format*

— *Part 23: Symbolic Music Representation*

— *Part 24: Audio and systems interaction* [Technical Report]

Information technology — Coding of audio-visual objects —

Part 23:
Symbolic Music Representation

1 Scope

This International Standard defines the Symbolic Music Representation technology. By capitalising the Symbolic Music Representation technology the acronym “SMR” has been derived.

A symbolic representation of music is a logical structure based on symbolic elements representing audiovisual events, the relationship between those events, and aspects related to how those events can be rendered and synchronized with other media types.

Many symbolic representations of music exist, including different styles of notation for chant, classical music, jazz and 20th-century styles; percussion notation; and simplified notations formats for children and vision-impaired readers. MPEG-4 SMR does not standardize one or more of these representations, but instead is an extensible language allowing those representations and many more which share a common underlying structure of music representation.

MPEG-4 SMR allows the synchronization of symbolic music elements with audiovisual events that existing standardized MPEG technology can represent and render.

The SMR technology is composed of different tools, which normative descriptions are in Clauses 7 to 12.

— **SMR Bitstream:** the syntax and semantics of the SMR bitstream.

— **Symbolic Music Extensible Format (SM-XF):** the syntax and semantics of the SMR format.

— **Symbolic Music Synchronization Information (SM-SI):** the syntax and semantics of the synchronisation Information between the SMR elements and the other audiovisual elements.

— **Symbolic Music Formatting Language (SM-FL):** the syntax and semantics of the rendering rules that are applied to the SMR XML format for rendering.

— **SMR Object Types for Profiles**: the object types of SMR to be used for the definition of Profiles.

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 14496-1:2004, *Information technology — Coding of audio-visual objects — Part 1: Systems*

ISO/IEC 14496-3:2001, *Information technology — Coding of audio-visual objects — Part 3: Audio*

ISO/IEC 14496-11:2005, *Information technology — Coding of audio-visual objects — Part 11: Scene description and application engine*

ISO/IEC 23001-1, *Information technology — MPEG systems technologies — Part 1: Binary MPEG format for XML*

IETF RFC 1952: *GZIP File Format Specification Version 4.3*, P. Deutsch, May 1996

Extensible Markup Language 1.0 (second edition), W3C Recommendation, 6 October 2000, http://www.w3.org/TR/2000/REC-xml-20001006

XML Schema Part 1: Structures and Part 2: Datatypes, W3C Recommendation, 2 May 2001, http://www.w3.org/TR/2001/REC-xmlschema-1-20010502, http://www.w3.org/TR/2001/REC-xmlschema-2-20010502

Canonical XML version 1.0, W3C Recommendation, 15 March 2001, http://www.w3.org/TR/2001/REC-xml-c14n-20010315