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AMENDMENT 2
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Information technology — MPEG systems technologies —

Part 11: Energy-efficient media consumption (green metadata)

AMENDMENT 2: Conformance and reference software

Technologies de l'information — Technologies des systèmes MPEG —

Partie 11: Consommation des supports éconergétiques (métadonnées vertes)

AMENDEMENT 2: Conformité et logiciel de référence

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/IEC JTC 1, *Information technology*, SC 29, *Coding of audio, picture, multimedia and hypermedia information.*

A list of all parts in the ISO/IEC 23001 series can be found on the ISO website.

Information technology — MPEG systems technologies —

Part 11:
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AMENDMENT 2: Conformance and reference software

Normative references

Add the following references:

ISO/IEC 14496-5, *Information technology — Coding of audio-visual objects — Part 5: Reference software* | Rec. ITU-T H.264.2, *Reference software for* ITU-T H.264 *advanced video coding*

ISO/IEC 23008-5, *Information technology — High efficiency coding and media delivery in heterogeneous environments — Part 5: Reference software for high efficiency video coding*

Terms, definitions, symbols, abbreviated terms and conventions

Add the following abbreviated terms:

BMFF	Base Media File Format
fps	frame per second
Mbps	megabits per second

Clause 8

At the end of Clause 8 add a new Clause 9:

9 Conformance and reference software

Conformance and reference software for green metadata shall be used as specified in Annex C.

Annex C

Add a new normative annex after Annex B:

Annex C
(normative)

Conformance and reference software

C.1 Complexity metrics for decoder-power reduction

C.1.1 Conformance test vectors

The following two 4:2:0 8 bit per sample AVC conformance bitstreams with embedded Green Metadata SEI message are available at http://standards.iso.org/iso-iec/23001/-11/ed-1/amd/2/en.

Name	Resolution/ Frame rate (fps)	RAP period (number of frames)	Bitrate (Mbps)	Green Metadata SEI period (number of frames)	Profile	Expected value
mobcal_480p50_AVC_HP.bin	704x480p@50	15	2.798	1	High	mobcal_480p50_AVC_HP.txt
stockholm_720p5994_AVC_HP.bin	1280x720p@59.94	15	7.205	1	High	stockholm_720p5994_AVC_HP.txt

To verify conformance of a software implementation of Green Metadata SEI message parsing, the conformance streams shall be used to check that extracted values match expected values given in the side text files provided with the conformance streams.

C.1.2 Reference software

The reference decoder software as specified in ISO/IEC 14496-5 or Rec. ITU-T H.264.2 integrates a Green Metadata SEI message parser, which extracts and displays SEI messages from conformance and test bitstreams.

To enable the Green Metadata SEI message parser, the source code shall be compiled with the macro #define PRINT_GREEN_METADATA_INFO.

To verify conformance of a test Green Metadata SEI message generated from a video in a test bitstream, the reference software shall be used to extract the test SEI message from the test bitstream and then to check the message for syntactic correctness and valid ranges.

C.2 Display-power reduction using display adaptation

C.2.1 Conformance test vectors

One conformance ISO BMFF file, BasketballDrill_28_gamma.mp4m, which contains Green Metadata samples of 'dfce' Sample Entry Type, as specified in ISO/IEC 23001-10, is available at http://standards.iso.org/iso-iec/23001/-11/ed-1/amd/2/en.

It is composed of a sample entry which contains static metadata and samples which contain dynamic metadata.

To verify conformance of a software implementation of 'dfce' Green Metadata samples parsing in an ISO BMFF file, the conformance file shall be used to check that extracted values match expected values given in the side text file provided with the conformance file.