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Information technology — MPEG audio technologies —

Part 2: Spatial Audio Object Coding (SAOC)

AMENDMENT 2: SAOC reference software

Technologies de l'information — Technologies audio MPEG —
Partie 2: Codage d'objet audio spatial (SAOC)

AMENDEMENT 2: Logiciel de référence SAOC

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Foreword

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The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

Information technology — MPEG audio technologies —

Part 2:
Spatial Audio Object Coding (SAOC)

AMENDMENT 2: SAOC reference software

Add Clause 11, Reference software, as follows:

11 Reference software

11.1 Reference software structure

11.1.1 Introduction

This Clause contains simulation software for SAOC as defined in Clauses 1 to 9 and Annexes A to G. This software has been derived from verification models used in the process of developing the standard.

Reference software is normative in the sense that it correctly implements the SAOC transcoding/decoding processes described in this part of ISO/IEC 23003. Complying with this part of ISO/IEC 23003 implementations are not expected to follow the algorithms or the programming techniques used by the reference software. Although the decoding software is considered normative, it cannot add anything to the textual technical description of SAOC included in this part of ISO/IEC 23003.

The software contained in this Clause and in Annex H is divided into three categories:

a) **Bitstream decoding software** is catalogued in 1.2. This software accepts bitstreams encoded according to the normative specification in this part of ISO/IEC 23003 and decodes the streams into the audio signals associated with each bitstream. While this software appears in the normative part of this specification, attention is drawn to the fact that the implementation techniques used in this software are not considered normative – several different implementations could produce the same result – but the software is considered normative in that it correctly implements the MPEG Surround decoding processes described in this part of ISO/IEC 23003.

b) **Bitstream encoding software** is catalogued in Annex H.1. This software creates bitstreams from associated audio signals. The encoders are provided as a means to obtain bitstreams with the normative syntax described in ISO/IEC 23003-2. The techniques used for encoding are not specified by this specification, and the quality and complexity of these encoders has not been optimized.

c) **Utility software** is catalogued in Annex H.2. This software was found useful by the developers of the standard, but may not conform to the normative specifications given in this part of ISO/IEC 23003.

File locations in the source tree given in this part of ISO/IEC 23003 are expressed relative to the location of the corresponding reference software package attached to this part of ISO/IEC 23003.

11.1.2 Copyright disclaimer for software modules

Each source code module in this specification contains a copyright disclaimer which shall not be removed from the source code module. The generic version of this disclaimer is provided below.

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This software module was originally developed *by <FN1> <LN1> (<CN1>) and edited by <FN2> <LN2> (<CN2>), <FN3> <LN3> (<CN3>),* in the course of development of the <standard> for reference purposes and its performance may not have been optimized. This software module is an implementation of one or more tools as specified by the <standard>.
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NOTE 1 In the text <standard> should be replaced with the appropriate International Standard, e.g. ISO/IEC 23003-2.

NOTE 2 <FN> = First Name, <LN> = Last name, <CN> = Company Name.

NOTE 3 Sentences in *italics* are not required in the statement if the original developer does not wish to be identified.

NOTE 4 Sentences in **bold** are not required in the statement if the original developer allows unrestricted use of this software.

NOTE 5 Sentences underlined should be removed when the <standard> is published.

NOTE 6 Reference to "ITU Recommendation" may be omitted when the module is deemed not to be relevant for ITU Recommendations.

11.2 Bitstream decoding software

11.2.1 Introduction

The provided bitstream decoding software is a normative reference implementation of the respective specification.

11.2.2 SAOC decoding software

Location	Content
saoc2mps	SAOC transcoder/decoder
mcu	SAOC MCU combiner
mp4spatialdec	LD-MPS decoder

Add Annex H:

Annex H

(informative)

Reference software

H.1 Bitstream encoding software

H.1.1 Introduction

For the bitstream encoding software provided here, attention is called to the fact that these encoders are provided for the purpose of creating bitstreams with normative syntax. The performance of these encoders should not be taken as indicative of that which can be obtained from implementations where quality and computational optimization are given priority. The techniques used for encoding are not specified by this specification.

H.1.2 MPEG SAOC encoding software

Location	Content
saocenc	SAOC encoder
mp4spatialenc	LD-MPS encoder

H.2 Additional utility software

H.2.1 Introduction

Software that appears in this Annex has proven to be useful to the developers of the standard but is not a normative reference implementation.

H.2.2 MPEG SAOC utility software

Location	Content
conf_saoc	Tools for SAOC conformance

H.3 Providers of reference software

The following organizations have contributed software:

— Dolby Sweden AB

— Fraunhofer Institute for Integrated Circuits IIS

— Royal Philips Electronics N.V.

ICS 35.040

Price based on 3 pages