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AMENDMENT 2
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Information technology — MPEG audio technologies —

Part 1: **MPEG Surround**

AMENDMENT 2: Reference software

Technologies de l'information — Technologies audio MPEG —

Partie 1: Ambiance MPEG

AMENDEMENT 2: Logiciel de référence

Reference number
ISO/IEC 23003-1:2007/Amd. 2:2008(E)

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Foreword

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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.

Amendment 2 to ISO/IEC 23003-1:2007 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology* Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information.*

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Information technology — MPEG audio technologies —

Part 1:
MPEG Surround

AMENDMENT 2: Reference software

After Clause 8, add a new clause, Reference software, as given below:

9 Reference software

9.1 Reference software structure

9.1.1 Introduction

This clause contains simulation software for MPEG Surround as defined in clauses 1 to 7 and Annexes A to J of ISO/IEC 23003-1. 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 MPEG Surround decoding processes described in ISO/IEC 23003-1. Complying ISO/IEC 23003-1 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 MPEG Surround included in ISO/IEC 23003-1.

The software contained in this clause 9 and in Annex K is divided into three categories:

a) **Bitstream decoding software** is catalogued in subclause 9.2. This software accepts bitstreams encoded according to the normative specification in ISO/IEC 23003-1 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 ISO/IEC 23003-1.

b) **Bitstream encoding software** is catalogued in Annex K.1 (informative). 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 23003-1. 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 K.2 (informative). This software was found useful by the developers of the standard, but may not conform to the normative specifications given in ISO/IEC 23003-1.

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9.1.2 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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9.2 Bitstream decoding software

9.2.1 Introduction

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

9.2.2 MPEG Surround decoding software

Location	Content
mp4spatialdec	MPEG Surround decoder
mp4mcDec	MPEG Surround decoder integrated with HE-AAC downmix decoder

After Annex J, add a new informative annex, as follows:

Annex K
(informative)

Reference software

K.1 Bitstream encoding software

K.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.

K.1.2 MPEG Surround encoding software

Location	Content
mp4spatialenc	MPEG Surround encoder

K.2 Additional utility software

K.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.

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K.2.2 MPEG Surround utility software

Location	Content
conf_mps	Tools for MPEG Surround conformance
mp12_mps	Tools for extracting MPEG Surround data embedded in MPEG-1/2 Layer I/II/III bitstreams

K.3 Providers of reference software

The following organizations have contributed software:

Agere Systems
Coding Technologies
Fraunhofer IIS
Philips
Panasonic
LG Electronics

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