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Information technology — High efficiency coding and media delivery in heterogeneous environments —

Part 3: 3D audio

AMENDMENT 2: MPEG-H 3D Audio File Format Support

*Technologies de l'information — Codage à haute efficacité et livraison
des médias dans des environnements hétérogènes —*

Partie 3: Audio 3D

AMENDEMENT 2: Support de format fichier audio 3D MPEG-H



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Foreword

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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.

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Amendment 2 to ISO/IEC 23008-3:2015 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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Add the following as a new Clause 20

20 Carriage of MPEG-H 3D Audio in ISO base media file format

20.1 General

This clause specifies the carriage of MPEG-H 3D Audio in the ISO base media file format. 20.2 describes the signalling of random access points for Immediate Play-out Frames (IPF) and independently decodable frames (IF). 20.7 describes the additional signalling of dynamic range control and loudness information that might be present in the encoded bitstream. 20.9 describes the additional signalling of audio scene information data that might be present in the encoded bitstream.

20.2 Random Access and Stream Access

Frames that use AudioPreRoll() following the restrictions in 5.5.6 are considered to be Immediate Play-out Frames (IPF) and shall be signalled by means of the sync sample box according to ISO/IEC 14496-12:2015, 8.6.2.

Independently decodable Frames (IF) as described in 5.7 shall be signalled by means of the roll sample group according to ISO/IEC 14496-12.

20.3 Overview of new box structures

mha1, mha2, mhm1, mhm2			*	<i>sample entry</i>
	mhaC			<i>configuration</i>
	mhaD			<i>dynamic range and loudness</i>
	maeM			<i>multi-stream</i>
	maeI			<i>audio scene information</i>
		maeG	*	<i>group definition</i>
		maeS		<i>switch group definition</i>
		maeP		<i>preset definition</i>
		maeL		<i>text label definition</i>

20.4 MHA decoder configuration record

20.4.1 Definition

This clause specifies the decoder configuration information for MPEG-H 3D Audio (MHA) content.

This record contains a version field. This version of the specification defines version 1 of this record. Incompatible changes to the record will be indicated by a change of version number. Readers must not attempt to decode this record or the streams to which it applies if the version number is unrecognised.

20.4.2 Syntax

```
aligned(8) class MHADecoderConfigurationRecord {
    unsigned int(8)    configurationVersion = 1;
    unsigned int(8)    mpeg3daProfileLevelIndication;
    unsigned int(8)    referenceChannelLayout;
    unsigned int(16)   mpeg3daConfigLength;
    bit(8*mpeg3daConfigLength) mpeg3daConfig;
}
```

20.4.3 Semantics

<code>configurationVersion</code>	shall be set to 1 in this version of the specification.
<code>mpeg3daProfileLevelIndication</code>	defined in 5.2.2.
<code>referenceChannelLayout</code>	ChannelConfiguration value defined in ISO/IEC 23001-8.
<code>mpeg3daConfigLength</code>	length in bytes of <code>mpeg3daConfig</code> .
<code>mpeg3daConfig</code>	the MPEG-H 3DA configuration defined in this part of ISO/IEC 23008.

20.5 MPEG-H Audio Sample Entry

20.5.1 Definition

Box Types: 'mhaC', 'mha1', 'mha2'

Container: Sample Table Box ('stbl')

Mandatory: The mha1 box is mandatory

Quantity: One or more sample entries may be present

The `MHASampleEntry` shall contain a `MHAConfigurationBox`, as defined below. This includes the `MHADecoderConfigurationRecord` as defined in 20.4. If the sample entry type is 'mha1', multiple streams shall not be used. If the sample entry name is 'mha2', multiple streams may be used.

If an 'mha1' or 'mha2' `MHASampleEntry` is present, each sample of the appropriate Track shall contain exactly one `mpeg3daFrame` as defined in this part of ISO/IEC 23008. An optional `MPEG4BitRateBox` may be present in the `MHASampleEntry` to signal the bit rate information of the MHA stream. Extension descriptors that should be inserted into the Elementary Stream Descriptor, when used in MPEG-4, may also be present. Other boxes may be present in the `MHASampleEntry`. When multiple streams are used, the `MHADecoderConfigurationRecord` for each track shall correspond to the appropriate `mpeg3daFrame` of that track.

The following optional boxes inherited from `AudioSampleEntry` from ISO/IEC 14496-12/Amd 4:2015 shall not be present

- `DownMixInstructions()`
- `DRCCoefficientsBasic()`
- `DRCInstructionsBasic()`