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AMENDMENT 20
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Information technology — Coding of audio-visual objects —

Part 4: Conformance testing

AMENDMENT 20: Scalable to lossless coding (SLS) conformance

Technologies de l'information — Codage des objets audiovisuels —

Partie 4: Essai de conformité

AMENDEMENT 20: Conformité de codage extensible à sans perte (SLS)

Reference number
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Foreword

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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.

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Amendment 20 to ISO/IEC 14496-4:2004 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

This Amendment adds the conformance testing for the SLS audio object types defined in 14496-3.

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Information technology — Coding of audio-visual objects —

Part 4:
Conformance testing

AMENDMENT 20: Scalable to lossless coding (SLS) conformance

In 6.5.1, File name conventions, add the following row at the end of Table 29:

Table 29 – File name conventions

SLS	<file base name>_<coreSetup>_<fs>_<bitres>	<file base name>_<coreSetup>_<fs>_<bitres>

In 6.5.1, File name conventions, add the following text:

<bitres> can be 16 or 24 and indicates the bit resolution of the coded wavefile

At the end of 6.6, Audio Object Types, add the following subclauses:

6.6.23 SLS (Scalable Lossless Coding)

6.6.23.1 Compressed data

6.6.23.1.1 Characteristics

Conformant SLS compressed MPEG-4 data shall have the SLS data stored as outlined in ISO/IEC 14496-3.

6.6.23.1.2 Test procedure

Each compressed data shall meet the syntactic and semantic requirements specified in ISO/IEC 14496-3. The decoded data shall also meet the requirements defined in ISO/IEC 14496-3. If a syntactic element is not listed below, no restrictions apply to that element. The **reserved** element shall be encoded with the value zero.

6.6.23.1.2.1 Compressed MPEG-4 data payload

6.6.23.1.2.1.1 AudioSpecificConfig

audioObjectType: Shall be encoded with the value 37 (core mode) or 38 (non-core mode).

6.6.23.1.2.1.2 SLSSpecificConfig

pcmWordLength: Shall be encoded with a value in the range [0 3], as defined in ISO/IEC 14496-3. Other values are reserved.

aac_core_present: either 0 or 1 for AOT 37, 0 for AOT 38.

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frameLength: Shall be encoded with a value in the range [0 3], as defined in ISO/IEC 14496-3. Other values are reserved.

6.6.23.1.2.1.3 lle_header()

band_type_signaling: Shall be encoded with a value in the range [0 2], as defined in ISO/IEC 14496-3. The value of 3 is reserved.

6.6.23.2 Decoders

6.6.23.2.1 Characteristics

The object type SLS has either the Object Type ID 37 (core mode) or 38 (non-core mode), and the compressed MPEG-4 data syntax is defined in ISO/IEC 14496-3. The Audio Object Type SLS contains the SLS tools.

6.6.23.2.2 Test procedure

Compressed data and reference decoder output signals are provided to apply the conformance criterion using the procedure described in the following subclause. Note that, for the bitstreams providing lossless reconstruction, the original input signals provide the reference for the decoder output signal.

The conformance of the SLS decoder can be checked with compressed data for the SLS object type.

For lossless compressed data, the conformance criterion is bit exact reproduction of the reference decoder output; this means that all bits in the output of the test decoder are identical to the corresponding bits in the output of the reference decoder.

To be called a conforming AAC-LC+SLS decoder, the required conformance criterion will be met for all compressed data with core coder AOT2 listed in subclause 6.6.23.2.3.

To be called a conforming BSAC+SLS decoder, the required conformance criterion will be met for all compressed data with core coder AOT22 listed in subclause 6.6.23.2.3.

To be called a conforming non-core SLS decoder, the required conformance criterion will be met for all compressed data with no core coder listed in subclause 6.6.23.2.3.

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6.6.23.2.3 Proposed test sequences

Table AMD20.1 — SLS test sequences

file base name	content	number of channels	sampling frequency (kHz)/ word length (bit)	max. truncation bitrate (kbit/s/ch)	core coder	BPGC	CBAC	conformance criterion
sls2100	mixed	2	48 / 16, 48 / 24 96 / 24, 192 / 24	none (lossless)	AOT 2 (64 kbit/s)	X		bit exact
sls2101	mixed	2	48 / 16, 48 / 24 96 / 24, 192 / 24	none (lossless)	AOT 2 (64 kbit/s)		X	bit exact
sls2110	mixed	2	48 / 16, 48 / 24 96 / 24, 192 / 24	256	AOT 2 (64 kbit/s)	X		bit exact
sls2111	mixed	2	48 / 16, 48 / 24 96 / 24, 192 / 24	256	AOT 2 (64 kbit/s)		X	bit exact
sls2200	mixed	2	48 / 16, 48 / 24 96 / 24, 192 / 24	none (lossless)	AOT 22 (64 kbit/s)	X		bit exact
sls2201	mixed	2	48 / 16, 48 / 24 96 / 24, 192 / 24	none (lossless)	AOT 22 (64 kbit/s)		X	bit exact
sls2210	mixed	2	48 / 16, 48 / 24 96 / 24, 192 / 24	256	AOT 22 (64 kbit/s)	X		bit exact
sls2211	mixed	2	48 / 16, 48 / 24 96 / 24, 192 / 24	256	AOT 22 (64 kbit/s)		X	bit exact
sls2300	mixed	2	48 / 16, 48 / 24 96 / 24, 192 / 24	none (lossless)	no core	X		bit exact
sls2301	mixed	2	48 / 16, 48 / 24 96 / 24, 192 / 24	none (lossless)	no core		X	bit exact
sls2310	mixed	2	48 / 16, 48 / 24 96 / 24, 192 / 24	256	no core	X		bit exact
sls2311	mixed	2	48 / 16, 48 / 24 96 / 24, 192 / 24	256	no core		X	bit exact
sls6100	mixed	6	48 / 24 96 / 24,	none (lossless)	AOT 2 (64 kbit/s)	X		bit exact
sls6101	mixed	6	48 / 24 96 / 24,	none (lossless)	AOT 2 (64 kbit/s)		X	bit exact
sls6110	mixed	6	48 / 24 96 / 24,	256	AOT 2 (64 kbit/s)	X		bit exact
sls6111	mixed	6	48 / 24 96 / 24,	256	AOT 2 (64 kbit/s)		X	bit exact
sls6200	mixed	6	48 / 24 96 / 24,	none (lossless)	AOT 22 (64 kbit/s)	X		bit exact
sls6201	mixed	6	48 / 24 96 / 24,	none (lossless)	AOT 22 (64 kbit/s)		X	bit exact
sls6210	mixed	6	48 / 24 96 / 24,	256	AOT 22 (64 kbit/s)	X		bit exact
sls6211	mixed	6	48 / 24 96 / 24,	256	AOT 22 (64 kbit/s)		X	bit exact
sls6300	mixed	6	48 / 24 96 / 24,	none (lossless)	no core	X		bit exact
sls6301	mixed	6	48 / 24 96 / 24,	none (lossless)	no core		X	bit exact
sls_6310	mixed	6	48 / 24 96 / 24,	256	no core	X		bit exact
sls_6311	mixed	6	48 / 24 96 / 24,	256	no core		X	bit exact

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6.6.23.3 Encoders

In order to guarantee, for an encoder implementation, that the decoded output results in an exact replica of the input signal, the following procedure should be followed:

- generate bitstreams using the target encoder for the conformance test item reference waveform data;

- decode these bitstreams using the conformant reference software decoder;

- verify that the decoded outputs are identical to the inputs.

Add test sequences provided in the electronic attachment into the subdirectories compressedMp4 and referencesWav.

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