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Information technology — Coding of audio-visual objects —

Part 4: Conformance testing

AMENDMENT 15: Lossless coding of oversampled audio

Technologies de l'information — Codage des objets audiovisuels

Partie 4: Essai de conformité

AMENDEMENT 15: Codage sans perte d'acoustique suréchantillonnée

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Amendment 15 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*.

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Information technology — Coding of audio-visual objects —

Part 4:
Conformance testing

AMENDMENT 15: Lossless coding of oversampled audio

In subclause 6.5.1 File name conventions, insert the following row into Table 29 after the row for SSC:

Table 29 — File name conventions

DST	dst_<tool>_<nchan>[_sig<sig>]	dst_<mode>_<tool>_<nchan>[_sig<sig>][_<chan>]

After subclause 6.6.19 SSC, add the following subclauses:

6.6.20 DST (Lossless coding of oversampled audio)

6.6.20.1 Compressed data

6.6.20.1.1 Characteristics

Conformant DST compressed MPEG-4 data shall have the DST data stored as outlined in ISO/IEC 14496-3:2005.

6.6.20.1.2 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.

6.6.20.1.2.1 Compressed MPEG-4 data payload

6.6.20.1.2.1.1 AudioSpecificConfig

audioObjectType: Shall be encoded with the value 35.

samplingFrequencyIndex: Shall be encoded with the value 0xf.

SamplingFrequency: Shall be encoded with the value 64*44100 or 128*44100 or 256*44100.

channelConfiguration: Shall be encoded with the value 0.

6.6.20.1.2.1.2 DSTSpecificConfig

N_Channels: Shall not be encoded with the value 0.

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6.6.20.1.2.1.3 DST

DST_X_Bit: Shall be encoded with the value '0'.

6.6.20.1.2.1.4 Channel_Segmentation

Nr_Of_Segments: Shall not exceed the value of 4 for the Filter_Segmentation and the Filter_And_Ptable_Segmentation, and shall not exceed the value of 8 for the Ptable_Segmentation.

Resolution: Shall be encoded with a value in the range of [1 Frame_length-MINSEGLEN], with MINSEGLEN as defined in ISO/IEC 14496-3:2005/Amd.6, 10.6.1.3.2.5.2.2.2.

Scaled_Length[*Nr_Of_Segments*]: Shall be encoded with a value in the range of [1 Range], with Range as defined in ISO/IEC 14496-3:2005/Amd.6, 10.6.1.3.2.5.2.2.3.

6.6.20.1.2.1.5 Filter_Coef_Sets

CC_Method: Shall not be encoded with the value '11'.

CCM: Shall not be encoded with the value 7.

6.6.20.1.2.1.6 Probability_Tables

PC_Method: Shall not be encoded with the value '11'.

PCM: Shall be encoded with a value in the range of [0 4].

6.6.20.2 Decoders

6.6.20.2.1 Characteristics

The object type DST has the Object Type ID 35, and the compressed MPEG-4 data syntax is defined in ISO/IEC 14496-3. The Audio Object Type DST contains the DST tool.

6.6.20.2.2 DST conformance test procedure

Test compressed data and reference decoder output signals are provided to apply the conformance criterion using the procedure described in the following sub clause.

The conformance of the DST decoder tool can be checked with compressed data for the DST 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 DST decoder, the required conformance criterion must be met for all test compressed data listed in subclause 6.6.20.2.3.

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6.6.20.2.3 Proposed test sequences

Table AMD15.1 — DST test sequences

file base name	content	Number of Channels	64 * 44100	128 * 44100	256 * 44100	Plain DSD frames	Segmentation Test	Mapping Test	Filter_Coef_Sets Test	Probability_Tables Test	Arithmetic_Coded_Data Test	Conformance criteria
dst_00	test signal	1, 2, 3, 4, 5, 6, 8, 16, 32, 64	y	y	y	-	-	-	-	-	-	Bit exact
dst_01	test signal	2, 5, 6	y	y	y	y	-	-	-	-	-	Bit exact
dst_02	test signal	2, 5, 6	y	y	y	-	y	-	-	-	-	Bit exact
dst_03	test signal	2, 5, 6	y	-	-		-	y	-	-	-	Bit exact
dst_04	test signal	2, 5, 6	y	-	-		-	-	y	-	-	Bit exact
dst_05	test signal	2, 5, 6	y	-	-		-	-	-	y	-	Bit exact
dst_06	test signal	2, 5, 6	y	-	-		-	-	-	-	y	Bit exact

6.6.20.3 Encoders

In order to guarantee that 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 data

- Decode these bitstreams using the conformant reference SW decoder;

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

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