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AMENDMENT 2
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Information technology — Generic coding of moving pictures and associated audio information —

Part 4: **Conformance testing**

AMENDMENT 2: Additional audio conformance test sequences

Technologies de l'information — Codage générique des images animées et des informations sonores associées —

Partie 4: Essais de conformité

AMENDEMENT 2: Séquences d'essais de conformité sonores additionnels

Reference number
ISO/IEC 13818-4:2004/Amd.2:2005(E)

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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 13818-4:2004 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 — Generic coding of moving pictures and associated audio information —

Part 4:
Conformance testing

AMENDMENT 2: Additional audio conformance test sequences

In clause 2 (Normative references), add:

ISO/IEC 14496-3, *Information technology — Coding of audio-visual objects — Part 3: Audio*

ISO/IEC 14496-4, *Information technology — Coding of audio-visual objects — Part 4: Conformance testing*

In subclause 7.4.2 (Descriptions of the audio test bitstreams), replace:

Compressed bitstreams are provided, according to ISO/IEC 13818-3. Detailed descriptions of the bitstreams are furnished below. The following file name extensions are used to identify different parts

testXX.mpg: MPEG-2 audio bitstream
testXX.ext: MPEG-2 audio extension bitstream (optional)
testXX.txt: description file

where XX stands for the bitstream number as indicated in tables 2-4 through 2-7.

with:

Compressed bitstreams are provided according to ISO/IEC 13818-3. Detailed descriptions of the bitstreams are furnished below. The following file name extensions are used:

l?-testXX.txt: description file
l?-testXX.mpg: MPEG-2 audio bitstream
l?-testXX.ext: MPEG-2 audio extension bitstream (optional)
l?-testXX.pcm MPEG-2 audio reference waveform (raw)
l?-testXX.wav MPEG-2 audio reference waveform (wav format)

? stands for the layer (1, 2 or 3)
XX stands for the bitstream number as indicated in tables 2-4 through 2-8.

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In subclause 7.4.2 (Descriptions of the audio test bitstreams), add to Table 4:

FEATURE	BIT STREAM NUMBER 11
Layer	II
matrix	2
extension	N
transmission ch alloc	Y
phantom Centre	N
prediction	N
Dyn Cross	N
Sampling frequency	44.1
LFE	N
Multi Lingual	N
Multi Lingual Fs	
ancillary data	N
bitrate BASE stream	384
bitrate ext. stream	
configuration	3/2

In subclause 7.4.2 (Descriptions of the audio test bitstreams), add to Table 7:

FEATURE	BIT STREAM NUMBER 32
Layer	II
Sampling frequency	24
bitrate	128
mode	Stereo
ancillary data	N

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At the end of subclause 7.4.2 (Descriptions of the audio test bitstreams), add:

Table 7a

bitstream number	mnemonic	layer	signal characteristic	sampling frequency [kHz]	CRC	mode	bitrate [kbit/s]
40	bitrate_16_all	III	tonal	16	none	11	all
41	bitrate_22_all	III	tonal	22.05	none	11	all
42	bitrate_24_all	III	tonal	24	none	11	all
43	compl24	III	sweep (10 Hz …20 kHz, 20 dB)	24	none	11	128
44	Noise	III	white noise	22.05	none	00	96
45	IS2	III	white noise	22.05	none	01	160
46	MS2	III	white noise	22.05	none	01	160

In subclause 8.4.1 (Profile Specification), replace:

The naming convention for ISO/IEC 13818-7 AAC decoders dictates that a decoder be specified as an A.L.I.D Channel <Profile Name> Profile ISO/IEC 13818-7 AAC Decoder, where A is replaced by the number of main audio channels, L by the number of LFE channels, I by the number of independent coupling channels, D by the number of dependently switched coupling channels, and Profile Name by the actual profile name (Main, Low-Complexity, or Scalable Sampling Rate). An example would be a 5.1.1.1 Channel Main Profile ISO/IEC 13818-7 AAC Decoder, indicating a decoder capable of decoding 5 main audio channels, one LFE channel, one independent coupling channel, and one dependent coupling channel, with each of the channels using the profile specified. This can be abbreviated as M.5.1.1.1. Similarly, a Low Complexity decoder can be specified by a leading "L", and an SSR profile by an "S".

A conforming decoder must support a minimum capability in terms of the number of main audio channels, LFE channels, independent coupling channels, and dependent coupling channels as specified below:

Table 8 - Minimum Decoder Capability for 1, 2, 3, 4, 5, and 7 Main Audio Channels vs. Profile

Number of Main Audio Channels	Main Profile Capability	Low Complexity Profile Capability	SSR Profile Capability
1	1.0.0.0	1.0.0.0	1.0.0.0
2	2.0.0.0	2.0.0.0	2.0.0.0
3	3.0.1.0	3.0.0.1	3.0.0.0
4	4.0.1.0	4.0.0.1	4.0.0.0
5	5.1.1.1	5.1.0.1	5.1.0.0
7	7.1.1.2	7.1.0.2	7.1.0.0

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The naming convention for ISO/IEC 13818-7 AAC decoders can be found in ISO/IEC 13818-3 (ISO/IEC 13818-7:2004, subclause 7.1.4 "Naming Convention for MPEG-2 AAC Decoders and Bitstreams").

A conforming decoder must support a minimum capability in terms of the number of main audio channels, LFE channels, independent coupling channels, and dependent coupling channels as specified in ISO/IEC 13818-3 (ISO/IEC 13818-7:2004, subclause 7.1.5 "Minimum Decoder Capability for Specified Number of Main Audio Channels and Profile").

In subclause 8.5.4 (ics_info()), replace:

Test bitstreams L3 and S17 are provided respectively for Main, Low-Complexity, and Scalable Sampling Rate profiles to test decoder performance on non-meaningful transitions.

with:

Test sequences al03 and as17 are provided respectively for Low-Complexity and Scalable Sampling Rate profiles to test decoder performance on non-meaningful window sequence transitions (note that Main profile decoders also need to fulfil Low Complexity Profile conformance).

After subclause 8.5.8 (excluded_channels()), add:

8.5.9 SBR

SBR compressed data shall be embedded in accordance with ISO/IEC 13818-7 and the payload shall comply with ISO/IEC 14496-4.

In subclause 8.6 (Procedure to Test Decoder Conformance), replace

The following test procedure applies to all sine sweep signals: Testing is done by comparing the output of a decoder under test with a reference output also supplied by this specification using the procedure described in section 2.6.6.1. Software is provided …

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with:

The following test procedure applies to all sine sweep signals: Testing is done by comparing the output of a decoder under test with a reference output also supplied by this specification using the procedure described in section 2.6.6.1. In cases where the decoder under test is followed by additional operations (e.g. quantizing a signal to a 16 bit output signal) it is permitted to use an intermediate signal output (e.g. with more than 16 bit) for conformance testing. Software is provided …

In subclause 8.6 (Procedure to Test Decoder Conformance), replace:

"

For the remaining test sequences, a check of conformance using the LSB criterion or other measurements (e.g. objective perceptual measurement systems) is not mandatory, but highly recommended. This also applies to bitstreams with non-meaningful window sequences.

with:

For the remaining AAC-only test sequences, a check of conformance using the LSB criterion or other measurements (e.g. objective perceptual measurement systems) is not mandatory, but highly recommended. This also applies to bitstreams with non-meaningful window sequences.

A decoder implementing the MPEG-2 AAC SBR combination shall comply with a level of the MPEG-4 High Efficiency AAC Profile defined in ISO/IEC 14496-3. Hence, the restrictions and abilities that apply for an MPEG-4 High Efficiency AAC decoder of a certain level also apply for the MPEG-2 AAC SBR decoder of the same capability.

The conformance testing of SBR shall be carried out in accordance to what is specified in ISO/IEC 14496-4, with the exception that all parts relating to any signalling except the implicit signalling shall be ignored.

Furthermore, the same conformance testing and criteria applies for the test-sequences. However, the test sequences are given as ADIF files.

In Annex D (Audio test bitstreams), replace:

This annex lists the bitstream descriptions and bitstream suites that can be used to test audio decoder compliance.

Not all the tests described in subclause 2.5 are covered by these bitstreams, however, some of the fundamental decoder requirements are believed to be covered by these test suites. A compliant decoder is expected to maintain correct audio/visual synchronization while decoding these bitstreams. The tests listed in

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Table D-1 are provided in an electronic annex that forms an integral part of this specification. Included in the directory is an “originators” text file which contains more complete of information regarding the test supplied by each of the organizations list in Table D.1. A “README” in audio root directory provides guidance on the contents of each of zipped test files.

Table D.1

Test bitstream originator	Test bitstream number
Philips Sound & Vision / ASA Lab - Eindhoven	test11, test12, test20, test21, test22, test24, test25, test26, test27, test28, test29, test30, test31, test33, test34, test35, test37
CCETT (Centre Commun D’Études de Télédiffusion et Télécommunications)	test04, test06, test07, test10, test17, test18, test19
IRT (Institut fuer Rundfunktechnik GmbH)	test03, test05, test08, test13, test15, test32
Alcatel Telecom	test01, test16
Electronics Labs. / Nippon Steel Corp.	test02, test09
Samsung A. I. T. (SAIT)	test14
FhG-IIS A, Audio/Multimedia Department	test23

with:

This annex lists the test sequences that can be used to test audio decoder compliance.

Not all the tests described in subclause 2.5 are covered by these test sequences. However, some of the fundamental decoder requirements are believed to be covered by this test suite. The test sequences listed in Table D.1 are provided in an electronic annex that forms an integral part of this specification.

Table D.1

Layer	Test sequence name
1	l1-test22, l1-test33
2	l2-test01, l2-test02, l2-test03, l2-test04, l2-test05, l2-test06, l2-test07, l2-test08, l2-test09, l2-test10, l2-test11, l2-test12, l2-test13, l2-test14, l2-test15, l2-test16, l2-test17, l2-test18, l2-test19, l2-test20, l2-test21, l2-test24, l2-test25, l2-test26, l2-test27, l2-test28, l2-test29, l2-test30, l2-test31, l2-test32, l2-test34, l2-test35, l2-test37
3	l3-test23

Remove Annex E (Patent statements).

In the electronic annex, replace /bitstreams/Audio with the content of the attached archive part-3.zip.

In the electronic annex, add the directory /bitstreams/AAC+SBR and add there the content of the attached archive part-7-sbr.zip.

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