

First edition
2010-05-01

AMENDMENT 5
2018-09

**Information technology — Coding of
audio-visual objects —**

**Part 26:
Audio conformance**

**AMENDMENT 5: Conformance for
new levels of ALS simple profile, SBR
enhancements**

*Technologies de l'information — Codage des objets audiovisuels —
Partie 26: Conformité audio
AMENDEMENT 5*



Reference number
ISO/IEC 14496-26:2010/Amd.5:2018(E)

© ISO/IEC 2018



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

A list of all parts in the ISO/IEC 14496 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

STANDARDSISO.COM : Click to view the full PDF of ISO/IEC 14496-26:2010/Amd 5:2018

Information technology — Coding of audio-visual objects —

Part 26: Audio conformance

AMENDMENT 5: Conformance for new levels of ALS simple profile, SBR enhancements

3

Add a new paragraph as third paragraph of this subclause:

The conformance bitstreams and decoded wav-files package can be found at: <http://standards.iso.org/iso-iec/14496/-26/ed-1/en/amd/5>

6.1

Replace the paragraph for **<tool>** with:

<tool> indicates the SBR module mainly targeted by the test sequence. Possible values are “e” for testing the envelope adjuster “s” for testing sine addition, “gh” for testing time-grid transitions in combination with changes of SBR header data, “i” for testing inverse filtering, “qmf” for testing the QMF implementation, “cm” and “gen” for testing various channel modes, “sig” for testing SBR signalling, “twi” for QMF identification, “sr” for testing various combinations of sampling rates, and “esbr” for testing SBR enhancements.

7.17.1.1

Add a new paragraph at the end of this subclause:

If SBR enhancements (eSBR) are used, eSBR data shall be stored as outlined in ISO/IEC 14496-3:2009, Annex 8.A.

7.17.1.2.1.6

Add a new subclause at the end of this subclause:

7.17.1.2.1.7 **esbr_data()**

The top level syntactic element for conveying SBR enhancement data to the decoder is defined in ISO/IEC 14496-3:2009/Amd.7:2018. No restrictions apply to bitstream elements within **esbr_data()**.

If SBR enhancements are used in combination with parametric stereo, **ps_data()** shall precede **esbr_data()** in the compressed data.

7.17.2.1

Add a new paragraph at the end of this subclause:

If no `esbr_data()` is present in the current frame the decoder shall resort to legacy SBR processing (i.e. `bs_sbr_preprocessing = 0`; `sbrPatchingMode = 1`).

7.17.2.3

Update Table 69 with the grey-shaded columns/rows.

file base name	content	bit rate (kbit/s)	QMF Identification	QMF Accuracy	envelope Adjuster Accuracy	grid control tests	header change tests	inverse filtering tests	additional sines tests	SBR pre-processing tests	harmonic transposer tests	CRC	Difference max	RMS max (linear value)	test procedure
al_sbr_twi	none	24	y	y	—	—	—	—	y	—	—	—	—	—	—
al_sbr_qmf	Sine Sweep	24	—	y	—	—	—	—	—	—	—	—	5	1.4	maxDiff/RMS
al_sbr_e	rectangle * 10Hz sine	24/48	—	—	y	—	—	—	—	—	—	y ^a	90	2.0	maxDiff/RMS
al_sbr_gh	rectangle * 10Hz sine	24/48	—	—	—	y	y	—	—	—	—	—	51	1.5	maxDiff/RMS
al_sbr_i ^b	rectangle + noise	24/48	—	—	—	—	—	—	—	—	—	y ^a	36	3.4	maxDiff/RMS
al_sbr_s	noise	24	—	—	—	—	—	—	y	—	—	—	120	1.9	maxDiff/RMS
al_sbr_cm	music	24-128	—	—	—	—	—	—	—	—	—	—	—	—	—
al_sbr_sig	music	48	—	—	—	—	—	—	—	—	—	—	—	—	—
al_sbr_sr	music	24-56	—	—	—	—	—	—	—	—	—	—	—	—	—
al_sbr_gen	sine	192-224	—	—	—	—	—	—	—	—	—	—	—	—	—
al_sbr_esbr_00	synthetic	24/48	—	—	—	—	—	—	—	y	—	—	TBD	TBD	maxDiff/RMS
al_sbr_esbr_01	synthetic	24/48	—	—	—	—	—	—	—	—	y	—	TBD	TBD	maxDiff/RMS
al960_sbr_qmf	Sine Sweep	24	—	y	—	—	—	—	—	—	—	—	TBD	TBD	maxDiff/RMS
al960_sbr_e	rectangle * 10Hz sine	24/48	—	—	y	—	—	—	—	—	—	y ^a	TBD	TBD	maxDiff/RMS

^a CRC enabled for 32 kHz testvectors.

^b The following bitstreams also exist with the suffix `_new`: `al_sbr_i_32_1`, `al_sbr_i_44_1`, `al_sbr_i_48_1`. These are preferred for conformance testing while the ones without this suffix are deprecated.

file base name	content	bit rate (kbit/s)	QMF Identification	QMF Accuracy	envelope Adjuster Accuracy	grid control tests	header change tests	inverse filtering tests	additional sines tests	SBR pre-processing tests	harmonic transposer tests	CRC	Difference	RMS max (linear value)	test procedure
al960_sbr_gh	rectangle* 10Hz sine	24/48	—	—	—	y	y	—	—	—	—	—	TBD	TBD	maxDiff/RMS
al960_sbr_i	rectangle + noise	24/48	—	—	—	—	—	y	—	—	—	yA	TBD	TBD	maxDiff/RMS
al960_sbr_s	noise	24	—	—	—	—	—	—	y	—	—	—	TBD	TBD	maxDiff/RMS

^a CRC enabled for 32 kHz testvectors.

^b The following bitstreams also exist with the suffix _new: al_sbr_i_32_1, al_sbr_i_44_1, al_sbr_i_48_1. These are preferred for conformance testing while the ones without this suffix are deprecated.

7.18.1.1, paragraph 2

Replace:

... PS data shall be stored as outlined in ISO/IEC 14496-3, Annex 8.A, Combination of the SBR tool with the parametric stereo tool.

With:

... PS data shall be stored as outlined in ISO/IEC 14496-3:2009, Annex 8.A.

7.22.2.3

Replace Table 74 with:

Table 74 — ALS test sequences

file base name	content	Number of Channels	sampling frequency (kHz)	word length (bit)	adaptive order	random access	block switching	LTP	joint stereo	MCC	B-GMC	RL-SLMS	Profile and levels	Conformance criteria
als_00	music	2	48, 96, 192	16, 20, 24	y	y							No indication	Bit exact
als_01	music	2	48, 96, 192	16, 20, 24	y		y		y				No indication	Bit exact
als_02	music	2	48, 96, 192	16, 20, 24				y					No indication	Bit exact
als_03	music	2	48, 96, 192	16, 20, 24					y				No indication	Bit exact
als_04	music	2	48, 96, 192	16, 20, 24						y			No indication	Bit exact

Table 74 (continued)

file base name	content	Number of Channels	sampling frequency (kHz)	word length (bit)	adaptive order	random access	block switching	LTP	joint stereo	MCC	B-GMC	RL-SLMS	Profile and levels	Conformance criteria
als_05	music	2	48, 96, 192	16, 20, 24							y		No indication	Bit exact
als_06	music	2	48, 96, 192	16, 20, 24								y	No indication	Bit exact
als_07	music	2	192	32 float	y								No indication	Bit exact
als_08	music	6	96	24	y	y	y	y	y	y	y		No indication	Bit exact
als_09	bio data	512	2	16	y		y	y	y	y	y		No indication	Bit exact
als_10	sine wave	1	48	16	y	y							No indication	Bit exact
als_11	music	2	48	16	y	y	y	y	y	y			Simple Profile Level 1	Bit exact
als_12	music	2	48	24	y	y	y	y	y	y			Simple Profile Level 2	Bit exact
als_13	music	6	48	16	y	y	y	y	y	y			Simple Profile Level 3	Bit exact
als_14	music	6	48	24	y	y	y	y	y	y			Simple Profile Level 4	Bit exact

12.2

Update Table 95 with the grey-shaded row:

Object type	sequence name	AAC sProfile							High Efficiency AAC Profile							High Efficiency AAC v2 Profile						
	Level	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
AAC LC	al00	≥6	≥3	NA	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X
	al01	≥6	≥3	NA	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X
	al02	≥6	≥3	NA	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X
	al03	≥6	≥3	NA	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X
	al04	≥6	≥3	NA	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X
	al05	≥6	≥3	NA	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X
	al06	≥6	≥3	NA	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X
	al07	≥6	≥3	NA	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X
	al08	≥6	≥3	NA	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X
	al14	≥6	≥3	NA	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X
	al16	≥6	≥3	NA	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X	NA	≥3	≥3	≥3	X	≥3	X