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Information technology — Coding of audio-visual objects —

Part 4: Conformance testing

AMENDMENT 14: BSAC conformance

Technologies de l'information — Codage des objets audiovisuels —

Partie 4: Essai de conformité

AMENDEMENT 14: Conformité BSAC

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 14 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*.

It specifies the conformance testing of BSAC multichannel and BSAC extensions as specified in ISO/IEC 14496-3:2005/Amd.2:2006 and ISO/IEC 14496-3:2005/Amd.5:2007.

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Information technology — Coding of audio-visual objects —

Part 4:
Conformance testing

AMENDMENT 14: BSAC conformance

In subclause 6.6.6 ER BSAC, replace:

However, only mono or 2-channel stereo objects are supported.

with:

The multichannel ER BSAC object is supported with BSAC channel extension payload.

In subclause 6.6.6.2.2 Test procedure, replace "Table 52" with "Table 52.A" (three occurrences).

At the end of subclause 6.6.6.2.2 Test procedure, add the following paragraph.

The conformance bitstreams corresponding to BSAC Extensions for the multichannel extension are the 'er_bs09' ~ 'er_bs11' as listed in Table 52.A. The conformance testing criterion for the multichannel extension is same as ER BSAC.
The conformance bitstreams corresponding to BSAC Extensions for the SBR extension are listed in Table 52.B. The conformance testing criterion for the SBR extension is specified in subclause 6.6.17. The SBR conformance test method of BSAC Extensions is different from that of HE-AAC in terms of parsing the SBR payload. In figure AMD8-2, the 'Read store/input' module is to parse the SBR payload from BSAC Extensions payload which can be realized by either decoding the whole BSAC Extensions payload or seeking the '*sync_word*' in the extensions payload.
The 'coreSetup' of naming convention for BSAC Extensions is the 'xx_sbr_<nchan>_<fs>' where the 'nchan' represents the number of channel and the 'fs' is the sampling rate of SBR tool. By comparing the decoded wave with the reference wave for the different 'highestLayer', the 'HF overlap' decoding module specified in 14496-3:2005 subclause 4.5.2.11.4 can be checked if it's implemented correctly. The testing criterion with 'Diffmax' and 'RMS max' shall be applied only when the bitstream is decoded up to top layer.

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In subclause 6.6.6.2.3 Test sequences, change the table index from Table 52 to Table 52.A and extend Table 52.A with:

Table 52.A — ER BSAC Object Type Test Compressed data for Mobile Audio Internetworking Profile Level 1-3 and Natural Audio Profile Level 1-2

File base name	Content	Base Layer Bitrate (kbit/s)	Top Bitrate (kbit/s)	Top Layer (n)	number of ES	ES Bitrate (kbit/s)	number of channel	Intensity	MS	TNS	PNS	epConfig	SBA	highestLayer	Test Procedure
.....															
er_bs09_ep0	music	32	200/320	24/48	1	200/320	5 {1,0,3} (**)		Yes	Yes		0		24/48	
er_bs09_ep1	music	32	200/320	24/48	6	BL, 48/96, BL, 24/48, BL, 48/96	5 {1,0,3} (**)		Yes	Yes		1		0, 24/48, 0, 24/48, 0, 24/48 (*)	
er_bs10_ep0	music	32	120/192	24/48	1	120/192	3 {1,0} (**)		Yes	Yes		0		24/48	
er_bs10_ep1	music	32	120/192	24/48	4	BL, 48/96 ,BL, 24/48	3 {1,0} (**)		Yes	Yes		1		0, 24/48, 0, 24/48 (*)	
er_bs11_ep0	music	32	300/480	24/48	1	300/480	8 {1,0,4,3,5} (**)		Yes	Yes		0		24/48	
er_bs11_ep1	music	32	300/480	24/48	9	BL, 48/96, BL, 24/48, ,20/32 ,BL, 48/96, BL, 48/96	8 {1,0,4,3,5} (**)		Yes	Yes		1		0, 24/48, 0, 24/48, 0,4/16, 0, 24/48, 0, 24/48 (*)	

* : The definition of ‘highestLayer’ for this bitstream is the highest layer of each BSAC extension payloads.

** : The numbers in the bracket represent the ‘channel_configuration_index’ of each BSAC extension payload as defined in ISO/IEC 14496-3:2005, subclause 4.5.2.6.2.1.1, Table 4.84B - channel_configuration_index.

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After Table 52.A in subclause 6.6.6.2.3 Test sequences, add the following table:

Table 52.B — ER BSAC Object Type with SBR tool

file base name	tool	content	bitrate (kbit/s)	nch	Core/SBR Sampling rate	QMF Identification	QMF Accuracy	Envelope Adjuster Accuracy	Grid control tests	Header Change Tests	Inverse Filtering Tests	Additional Sines Tests	CRC	Diff max	RMS max (linear value)	highestLayer	test procedure
er_bs12_sbr	twi	none	64	1	24/48kHz	y	y	-	-	-	-	y	-	-	-	0, 24, 48	
er_bs13_sbr	qmf	Sine Sweep	64	1	16/32kHz 22/44kHz 24/48kHz	-	Y	-	-	-	-	-	-	5	1.4	0, 24, 48	maxDiff/RMS
er_bs14_sbr	e	rectangle * 10Hz sine	128	2	16/32kHz 22/44kHz 24/48kHz	-	-	y	-	-	-	-	y[A]	90	2.0	0, 24, 48	maxDiff/RMS
er_bs15_sbr	gh	rectangle * 10Hz sine	64/128	1/2	16/32kHz 22/44kHz 24/48kHz	-	-	-	y	y	-	-	-	51	1.5	0, 24, 48	maxDiff/RMS
er_bs16_sbr	i	rectangle + noise	64/128	1/2	16/32kHz 22/44kHz 24/48kHz	-	-	-	-	-	y	-	y[A]	36	3.4	0, 24, 48	maxDiff/RMS
er_bs17_sbr	s	noise	64/128	1/2	16/32kHz 22/44kHz 24/48kHz	-	-	-	-	-	-	y	-	120	1.9	0, 24, 48	maxDiff/RMS
er_bs18_sbr	cm	music	64/128	1/2	16/32kHz 22/44kHz 24/48kHz	-	-	-	-	-	-	-	-	-	-	0, 24, 48	
er_bs19_sbr	cm	music	320	5.1	24/48kHz	-	-	-	-	-	-	-	-	-	-	24/48	
er_bs20_sbr	sig0	music	128/320	2/5	24/48kHz	-	-	-	-	-	-	-	-	-	-	24/48	
er_bs21_sbr	sig1	music	128/320	2/5	24/48kHz	-	-	-	-	-	-	-	-	-	-	24/48	
er_bs22_sbr	sig2	music	128/320	2/5	24/48kHz	-	-	-	-	-	-	-	-	-	-	24/48	
er_bs23_sbr	sr	music	128	2	16/32kHz 22/44kHz 24/48kHz 48/96kHz	-	-	-	-	-	-	-	-	-	-	24/48	
A **CRC enabled for 32 kHz testvectors**																	

After 6.6.6.1.2.2.3 general header(), add the following text:

6.6.6.1.2.2.4 extended_bsac_raw_data_block()

channel_configuration_index : shall be encoded with the value which is less than 6

The restrictions on the extended_bsac_raw_data_block() shall be applied as those of bsac_raw_data_block().

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In subclause 6.7.2.2 (Test procedure), extend Table 94 (EP tool test sequences) with:

Table 94 — EP tool test sequences

header_crclen		-	-	-
header_rate		-	-	-
header_protection		0	0	0
class_output_order		-	-	-
class_reordered_output		0	0	0
class_crclen		10,10,9,10,10,10	10,10,9,10	10,10,9,10,8,10,10,10
class_rate		20,0,16,0,8,0	20,0,16,0	20,0,16,0,0,8,0,8,0
class_length		-	-	-
number_of_bits_for_length		10,14,9,13,10,0	10,14,9,0	10,14,9,13,9,10,13,10,0
class_optional		0,0,0,0,0,0	0,0,0,0	0,0,0,0,0,0,0,0,0,0
interleave_switch		-	-	-
termination_switch		0,0,0,0,0,0	0,0,0,0	0,0,0,0,0,0,0,0,0,0
fec_type		0,0,0,0,0,0	0,0,0,0	0,0,0,0,0,0,0,0,0,0
concatenated_flag		-	-	-
crc_len_escape		0,0,0,0,0,0	0,0,0,0	0,0,0,0,0,0,0,0,0,0
rate_escape		0,0,0,0,0,0	0,0,0,0	0,0,0,0,0,0,0,0,0,0
length_escape		1,1,1,1,1,1	1,1,1,1	1,1,1,1,1,1,1,1,1,1
number_of_class		6	4	9
number_of_concatenated_frame		1	1	1
bit_stuffing		1	1	1
interleave_type		1	1	1
number_of_predefinition_set		1	1	1
SamplingFrequencyIndex (if not specified: same as for epConfig=0,1)		-	-	-
directMaping		1	1	1
epConfig		3	3	3
layer		-	-	-
epSetup				
coreSetup	...	er_bs09	er_bs10	er_bs11

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In subclause 6.12.1, extend Table 104a with:

Table 104a

Object type	sequence name	Main Audio Profile				Scalable Audio Profile				Speech Profile		Synthetic Audio Profile		
	Level	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**1**	**2**	**1**	**2**	**3**
	...													
ER BSAC	er_bs01_ep0													
	....													
	er_bs09_ep0													
	er_bs09_ep1													
	er_bs09_ep3													
	er_bs10_ep0													
	er_bs10_ep1													
	er_bs10_ep3													
	er_bs11_ep0													
	er_bs11_ep1													
	er_bs11_ep3													

In subclause 6.12.1, extend Table 104b with:

Table 104b

Object type	sequence name	High Quality Audio Profile								Low Delay Audio Profile								Natural Audio Profile				Mobile Audio Internetworking Profile					
	Level	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**1**	**2**	**3**	**4**	**1**	**2**	**3**	**4**	**5**	**6**
	...																										
ER BSAC	er_bs01_ep0																	X	X			≥6	<6	<6			
	....																										
	er_bs09_ep0																	X	X					X			
	er_bs09_ep1																	X	X					X			
	er_bs09_ep3																			X	X						X
	er_bs10_ep0																	X	X					X			
	er_bs10_ep1																	X	X					X			
	er_bs10_ep3																			X	X						X
	er_bs11_ep0																	X	X								
	er_bs11_ep1																	X	X								
	er_bs11_ep3																			X	X						

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