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AMENDMENT 11
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Information technology — Coding of audio-visual objects —

Part 4: Conformance testing

AMENDMENT 11: Parametric stereo conformance

Technologies de l'information — Codage des objets audiovisuels —

Partie 4: Essai de conformité

AMENDEMENT 11: Conformité stéréo paramétrique

Reference number
ISO/IEC 14496-4:2004/Amd.11:2006(E)

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Amendment 11 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 combination of the SBR tool with the parametric stereo tool as defined in Annex 8.A of ISO/IEC 14496-3:2006.

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Information technology — Coding of audio-visual objects —

Part 4:
Conformance testing

AMENDMENT 11: Parametric stereo conformance

In subclause 6.5.1 File name conventions, insert the following row into Table 29 after the row for SBR (+AAC LC):

Table 29 – File name conventions

PS (+SBR+AAC LC)	al_sbr_ps_<coreSetup>	al_sbr_ps_<coreSetup>[_<version>]		

And add:

⟨version⟩ is either “bl” or ”ur” for the baseline or the unrestricted version of the parametric stereo decoding algorithm respectively.

After subclause 6.6.17 SBR, add the following subclauses:

6.6.18 PS (Parametric Stereo)

6.6.18.1 Compressed data

6.6.18.1.1 Characteristics

The parametric stereo tool can be used in combination with (the combination of) the AAC LC AOT and the SBR AOT, or with the SSC AOT.

If the parametric stereo tool is used in combination with the AAC LC AOT and the SBR AOT, the 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*.

6.6.18.1.2 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_ps** element shall be encoded with the value zero.

6.6.18.1.2.1 Compressed MPEG-4 data payload

6.6.18.1.2.1.1 ps_data()

iid_mode: Shall be encoded with a value in the range of [0 5]. The values 6, 7 are reserved.

icc_mode: Shall be encoded with a value in the range of [0 5]. The values 6, 7 are reserved.

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border_position[e]: Shall be encoded with a value in the range of [(border_position[e-1]+1) (*numQMFSlots*-1)] if e>0 or a value in the range of [0 (*numQMFSlots*-1)] if e==0.

iid_dt[]: Shall be encoded with the value 0 if iid_mode of the current envelope e is different from iid_mode of the previous envelope (e-1).

icc_dt[]: Shall be encoded with the value 0 if icc_mode of the current envelope e is different from icc_mode of the previous envelope (e-1).

ps_extension_id: Shall be encoded with the value of 0. The values 1, 2 and 3 are reserved.

6.6.18.1.2.1.2 ps_extension()

ipd_dt[]: Shall be encoded with the value 0 if iid_mode of the current envelope e is different from iid_mode of the previous envelope (e-1).

opd_dt[]: Shall be encoded with the value 0 if iid_mode of the current envelope e is different from iid_mode of the previous envelope (e-1).

6.6.18.1.2.1.3 iid_data()

bs_codeword: Shall be encoded with the values listed in the corresponding Huffman table, defined in ISO/IEC 14496-3, Table 8.B.17 or Table 8.B.18.

Conformant compressed MPEG-4 data shall have coded iid_par[e][b] IID indices that are in the range [-7 7] if iid_quant==0 or in the range [-15 15] if iid_quant==1.

6.6.18.1.2.1.4 icc_data()

bs_codeword: Shall be encoded with the values listed in the corresponding Huffman table, defined in ISO/IEC 14496-3, Table 8.B.19.

Conformant compressed MPEG-4 data shall have coded icc_par[e][b] ICC indices that are in the range [0 7].

6.6.18.1.2.1.5 ipd_data()

bs_codeword: Shall be encoded with the values listed in the corresponding Huffman table, defined in ISO/IEC 14496-3, Table 8.B.20.

6.6.18.1.2.1.6 opd_data()

bs_codeword: Shall be encoded with the values listed in the corresponding Huffman table, defined in ISO/IEC 14496-3, Table 8.B.21.

6.6.18.1.2.1.7 restrictions on underlying coders

The underlying core coder must produce exactly one output channel.

6.6.18.1.3 HE-AAC v2 profile

if the SBR bitstream element bs_header_flag is 1, enable_ps_header shall be encoded with the value 1 and iid_dt, icc_dt, ipd_dt (if present) shall be encoded with the value 0.

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6.6.18.2 Decoders

6.6.18.2.1 Characteristics

The object type PS has the Object Type ID 29, and the compressed MPEG-4 data syntax is defined in ISO/IEC 14496-3. The Audio Object Type PS contains the PS Tool.

6.6.18.2.2 HE-AAC v2 profile

A conformant HE-AAC v2 profile decoder shall support all the abilities of an HE-AAC profile decoder as outlined in 6.6.17.2.1.1 HE-AAC profile.

A conformant HE-AAC v2 profile decoder shall support implicit PS signaling, as outlined in ISO/IEC 14496-3:2005/Amd.2, subclause 1.6.6.3 HE AAC v2 Profile Decoder Behavior in Case of Implicit Signaling.

A conformant HE-AAC v2 profile decoder shall support explicit PS signaling as outlined in ISO/IEC 14496-3:2005/Amd.2, subclause 1.6.6.4 HE AAC v2 Profile Decoder Behavior in Case of Explicit Signaling.

A conformant HE-AAC v2 profile decoder that receives a PS enhanced data stream shall output the mono signal in the two output channels until a first ps_data() element with enable_ps_header==1 is received, ensuring that the PS data can be decoded correctly.

A conformant HE-AAC v2 profile decoder of Level 2 or higher, shall support the baseline version of the PS tool, as outlined in ISO/IEC 14496-3, subclause 8.A.4 *Baseline version of parametric stereo coding tool*.

A conformant HE-AAC v2 profile decoder of Level 3 or higher, shall support mixing mode Ra and Rb, IPD/OPD synthesis and 34 frequency bands resolution, as outlined in ISO/IEC 14496-3, subclause 8.6.4 *Parametric stereo*.

A conformant HE-AAC v2 Profile decoder of a certain level shall always be able to operate the HQ SBR tool for streams containing Parametric Stereo data. For streams not containing Parametric Stereo data, the HE-AAC v2 Profile decoder may operate the HQ SBR tool, or the LP SBR tool.

6.6.18.2.3 PS conformance test procedure

The conformance test procedure for the PS tool is the same test procedure as for the SBR tool, with the addition that the reference SBR decoder used in the SBR tool test-procedure also includes the PS tool.

6.6.18.2.4 Test sequences

Table AMD11.1 — PS test sequences

file base name	content	bitrate (kbit/s)	iid_data	icc_data	ipd_data	opd_data	mixing procedure	iid-/icc-mode switching	Diff max	RMS max (linear value)	test procedure
al_sbr_ps_00	sweep	32	-	-	-	-	-	-	8	1.7	RMS
al_sbr_ps_01	sweep	32	y	-	-	-	-	-	12	1.8	RMS
al_sbr_ps_02	sweep	32	-	y	-	-	Ra	-	-	-	-
al_sbr_ps_03	sweep	32	y	y	-	-	Rb	-	-	-	-
al_sbr_ps_04	sweep	32	y	-	y	y	-	-	-	-	-
al_sbr_ps_05	sweep	32	y	y	-	-	Ra	-	-	-	-
al_sbr_ps_06	sweep	32	y	y	-	-	Ra	y	-	-	-

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In subclause 6.12.1 Conformance test sequence assignment to profiles and levels, add the following rows and columns to Table 104:

Additions to Table 104

Object type	sequence name	High Efficiency AAC v2 Profile			
	Level	**2**	**3**	**4**	**5**
PS	al_sbr_ps_00	X	X	X	X
	al_sbr_ps_01	X	X	X	X
	al_sbr_ps_02	X	X	X	X
	al_sbr_ps_03	X	X	X	X
	al_sbr_ps_04	X	X	X	X
	al_sbr_ps_05	X	X	X	X
	al_sbr_ps_06	X	X	X	X

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