INTERNATIONAL STANDARD ISO/IEC 23003-3:2012
TECHNICAL CORRIGENDUM 4

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Information technology — MPEG audio technologies —

Part 3:
Unified speech and audio coding

TECHNICAL CORRIGENDUM 4

Technologies de l'information -- Technologies audio MPEG —

Partie 3: Discours unifié et codage audio

RECTIFICATIF TECHNIQUE 4

Technical Corrigendum 4 to ISO/IEC 23003-3:2012 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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In 4.5.2 replace:

Table 1 — Summary of the Location of and Normative Reference to the Definitions of all AAC, HE-AAC and USAC Coding Tools as employed in the Extended High Efficiency AAC profile

Tool / Module		defined in ISO/IEC	sub-claus e	USAC	AAC LC	SBR	PS
block switching		14496-3	4.6.11	X	X		
window shapes	AAC based	14496-3	4.6.11	X	X		
	additional USAC	23003-3		X			
filter bank	standard	14496-3	4.6.11	X	X		
	time-warped	23003-3		X			
TNS		14496-3	4.6.9	X	X		
intensity		14496-3	4.6.8.2	NOTE 1	X		
coupling		14496-3	4.6.8.3		X		
perceptual noise synthesis	PNS	14496-3	4.6.13	NOTE 2	X		
	noise filling	23003-3		X			
MS	basic mid/side coding	14496-3	4.6.8.1	X	X		
	MDCT based complex prediction	23003-3		X			
quantization	non-uniform	14496-3	4.6.1	X	X		
	uniform	23003-3		X			
entropy coding	Huffman	14496-3	4.6.3	NOTE 3	X		
	context adaptive arithmetic coding	23003-3		X			
SBR	base	14496-3	4.6.18	X		X	X
	enhanced	23003-3		X			
parametric stereo extension	Parametric Stereo	14496-3	8.6.4 / 8.A	NOTE 4			X
	MPEG Surround 2-1-2 (incl. residual coding)	23003-3		X			
ACELP		23003-3		X			
frequency domain noise shaping	scale factor based	14496-3	4.6.2	X	X		
	LPC based	23003-3		X			

NOTE 1: Functionality of the AAC LC intensity tool is fully provided by the MDCT based complex prediction tool of USAC

NOTE 2: Functionality of the PNS tool is largely provided by the noise filling tool of USAC

NOTE 3: Functionality of the AAC LC Huffman coding tool is fully provided by the context adaptive arithmetic coding tool of USAC

NOTE 4: Functionality of the Parametric Stereo tool is fully provided by the MPEG Surround 2-1-2 tool of USAC

with:

Table 2 — Summary of the Location of and Normative Reference to the Definitions of all AAC, HE-AAC and USAC Coding Tools as employed in the Extended High Efficiency AAC profile

Module	Tool	defined in ISO/IEC	sub-claus e	USAC	AAC LC	SBR	PS
block switching	block switching	14496-3	4.6.11	X	X		
window shapes	AAC based	14496-3	4.6.11	X	X		
	additional USAC	23003-3	6.2.9.3	X			
filter bank	AAC based	14496-3	4.6.11	X	X		
	additional USAC	23003-3	7.9	X			
TNS	TNS	14496-3	4.6.9	X	X		
intensity / coupling	intensity	14496-3	4.6.8.2	NOTE 1	X		
	coupling	14496-3	4.6.8.3		X		
perceptual noise synthesis	PNS	14496-3	4.6.13	NOTE 2	X		
	noise filling	23003-3	7.2	X			
MS	basic mid/side coding	14496-3	4.6.8.1	X	X		
	MDCT based complex prediction	23003-3	7.7.2	X			
quantization	non-uniform	14496-3	4.6.1	X	X		
	uniform	23003-3	7.1	X			
spectral noiseless coding	Huffman	14496-3	4.6.3	NOTE 3	X		
	context adaptive arithmetic coding	23003-3	7.4	X			
SBR	base	14496-3	4.6.18	X		X	X
	enhanced	23003-3	7.5	X			
parametric stereo extension	Parametric Stereo	14496-3	8.6.4 / 8.A	NOTE 4			X
	MPEG Surround 2-1-2 (incl. residual coding)	23003-3	6.2.13	X			
ACELP	ACELP	23003-3	7.14	X			
frequency domain noise shaping	scale factor based	14496-3	4.6.2	X	X		
	LPC based (as part of MDCT based TCX)	23003-3	7.15	X			

NOTE 1: Functionality of the AAC LC intensity tool is fully provided by the MDCT based complex prediction tool of USAC
NOTE 2: Functionality of the PNS tool is largely provided by the noise filling tool of USAC
NOTE 3: Functionality of the AAC LC Huffman coding tool is fully provided by the context adaptive arithmetic coding tool of USAC
NOTE 4: Functionality of the Parametric Stereo tool is fully provided by the MPEG Surround 2-1-2 tool of USAC

In 4.2. replace:

The spectral noiseless decoding tool takes information from the bitstream payload demultiplexer, parses that information, decodes the arithmetically coded data, and reconstructs the quantized spectra.The input to this noiseless decoding tool is:

with:

The context adaptive arithmetic decoding tool performs the spectral noiseless decoding step. It takes information from the bitstream payload demultiplexer, parses that information, decodes the context

adaptive arithmetically coded data, and reconstructs the quantized spectra. The input to this noiseless decoding tool is:
In 4.2 remove the following sentence:

The use of the noise filling tool is optional.

At the end of the first paragraph of 4.5.4 add:

Note that for some tools specific restrictions apply, as outlined in the following.

In the same subclause replace:

All levels include Level 2 of the Baseline USAC profile.

with:

All levels must support all tools required by the Baseline USAC profile. Support for additional tools is optional.

Following the heading "7.11.2.5 All-Pass Decorrelator" insert a new subclause heading:

7.11.2.5.1 General

Following Table 139 insert a new heading:

7.11.2.5.2 Fractional Delay Decorrelator

In 6.2.11.1 replace:

Spectral coefficients from both the “linear prediction-domain” coded signal and the “frequency-domain” coded signal are scalar quantized and then noiselessly coded by an adaptive context dependent arithmetic coder.

with:

Spectral coefficients from both the “linear prediction-domain” coded signal and the “frequency-domain” coded signal are scalar quantized and then noiselessly coded by a context adaptive arithmetic coder.

Also, modify all similar mention of the arithmetic coder accordingly to say "context adaptive arithmetic coder".

In 7.15.1 replace:

[…]
LPC based frequency-domain noise shaping is then applied to the resulting spectral coefficients and an inverse MDCT transformation is performed to obtain the time-domain synthesis signal.

with:

[…]

LPC based frequency-domain noise shaping (FDNS) is then applied to the resulting spectral coefficients and an inverse MDCT transformation is performed to obtain the time-domain synthesis signal.