
**Information technology — High
efficiency coding and media delivery
in heterogeneous environments —**

**Part 3:
3D audio**

**AMENDMENT 2: 3D Audio baseline
profile, corrections and improvements**

*Technologies de l'information — Codage à haute efficacité et livraison
des médias dans des environnements hétérogènes —*

Partie 3: Audio 3D

*AMENDEMENT 2: Profil de base audio 3D, corrections et
améliorations*



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This document 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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Subclause 4.8.2 (Profiles)

After list item 3, add:

- 4) The baseline profile is a subset of the low-complexity profile which supports channel and object signals.

Replace [Table 2](#) with:

Table 2 — Summary of the location of and normative reference to the definitions of MPEG-H 3D audio profiles

Tool/Module		Defined in ISO/IEC	Sub-clause	USAC 23003-3	MPEG-H 3D audio High profile	MPEG-H 3D audio Low-complexity profile	MPEG-H 3D audio Baseline profile
block switching		14496-3	4.6.11	X	X	X	X
window shapes	AAC based	14496-3	4.6.11	X	X	X	X
	Additional windows	23003-3	6.2.9.3	X	X	X	X
filter bank	AAC based	14496-3	4.6.11	X	X	X	X
	additional USAC	23003-3	7.9	X	X	X	X
TNS		14496-3	4.6.9	X	X	X	X
intensity		14496-3	4.6.8.2				
coupling		14496-3	4.6.8.3				
perceptual noise synthesis	PNS	14496-3	4.6.13				
	noise filling	23003-3	7.2	X	X	X	X
<p>^a Restrictions apply dependent on the levels.</p> <p>^b Implementation of binaural rendering is only mandated if headphone reproduction is supported.</p> <p>^c Multi-band DRC-1 shall be applied in the STFT domain of the TD format converter.</p> <p>^d The TD format converter downmix shall be applied for downmixing.</p> <p>^e In order to achieve target complexity for the LC profile at a given level, study Annex G.</p> <p>^f File format encapsulation is independent of the profile that is used for the bitstream. A profile level indicator is part of the file format specification (see subclause 20.4).</p>							

Table 2 (continued)

Tool/Module		Defined in ISO/IEC	Sub-clause	USAC 23003-3	MPEG-H 3D audio High profile	MPEG-H 3D audio Low-complexity profile	MPEG-H 3D audio Baseline profile
MS	basic mid/side coding	14496-3	4.6.8.1	X	X	X	X
	MDCT based complex prediction	23003-3	7.7.2	X	X	X	X
quantization	non-uniform	14496-3	4.6.1	X	X	X	X
	uniform	23003-3	7.1	X	X	X	
entropy coding	Huffman	14496-3	4.6.3				
	context adaptive arithmetic coding	23003-3	7.4	X	X	X	X
SBR	base	14496-3	4.6.18	X	X		
	enhanced	23003-3	7.5	X	X		
parametric stereo extension	parametric stereo	14496-3	8.6.4 / 8.A				
	MPEG surround 2-1-2 (incl. residual coding)	23003-3	6.2.13	X	X		
	quad channel element	23008-3	5.5		X		
ACELP		23003-3	7.14	X	X	X	
frequency domain noise shaping	scale factor based	14496-3	4.6.2	X	X	X	X
	LPC based	23003-3		X	X	X	
intelligent gap filling	IGF for FD	23008-3			X	X	X
improved LPD coding	IGF for TCX and TBE in ACELP	23008-3			X	X	
	LPD stereo	23008-3			X	X	
predictors for FD	frequency-domain prediction and time-domain post-filtering	23008-3			X	X	X
predictors for TCX	frequency-domain prediction and time-domain post-filtering	23008-3			X	X	

^a Restrictions apply dependent on the levels.

^b Implementation of binaural rendering is only mandated if headphone reproduction is supported.

^c Multi-band DRC-1 shall be applied in the STFT domain of the TD format converter.

^d The TD format converter downmix shall be applied for downmixing.

^e In order to achieve target complexity for the LC profile at a given level, study Annex G.

^f File format encapsulation is independent of the profile that is used for the bitstream. A profile level indicator is part of the file format specification (see subclause 20.4).

Table 2 (continued)

Tool/Module		Defined in ISO/IEC	Sub-clause	USAC 23003-3	MPEG-H 3D audio High profile	MPEG-H 3D audio Low-complexity profile	MPEG-H 3D audio Baseline profile
discrete multi-channel coding	MCT	23008-3			X	X	X
format converter	generic downmix	23008-3	10, 24		X	X ^d	X ^d
immersive rendering	immersive rendering within format converter	23008-3	11, 25		X	X ^d	X ^d
static metadata	metadata audio elements (MAE) and audio scene information (ASI)	23008-3	15		X	X	X
	decoder and renderer						
dynamic object metadata	object audio metadata (OAM)	23008-3	7, 8		X	X	X
	decoder and renderer						
MPS	MPEG surround extension	23003-1	10		X		
SAOC-3D	decoder and renderer	23008-3	9		X		
HOA	decoder and renderer	23008-3	12		X	X ^e	
	near field compensation	23008-3			X	X ^a	
	subband directional prediction	23008-3			X		
	parametric ambience replication (PAR)	23008-3			X		
	phase-based decorrelation	23008-3			X		
Binaural	FD-binaural, TD-binaural	23008-3	13		X	X ^b	X ^b
	HOA2Binaural H2B	23008-3			X	X ^b	
<p>^a Restrictions apply dependent on the levels.</p> <p>^b Implementation of binaural rendering is only mandated if headphone reproduction is supported.</p> <p>^c Multi-band DRC-1 shall be applied in the STFT domain of the TD format converter.</p> <p>^d The TD format converter downmix shall be applied for downmixing.</p> <p>^e In order to achieve target complexity for the LC profile at a given level, study Annex G.</p> <p>^f File format encapsulation is independent of the profile that is used for the bitstream. A profile level indicator is part of the file format specification (see subclause 20.4).</p>							

Table 2 (continued)

Tool/Module		Defined in ISO/IEC	Sub-clause	USAC 23003-3	MPEG-H 3D audio High profile	MPEG-H 3D audio Low-complexity profile	MPEG-H 3D audio Baseline profile
DRC	DRC-1	23003-4			X	X ^c	X ^c
	DRC-2 (single band)	23003-4			X	X	X
	DRC-2 (multi band)	23003-4					
	DRC-3 (single band)	23003-4			X	X	X
sample rate converter		23008-3			X	X	X
peak limiter	unguided clipping prevention	23008-3 23003-4	D		X	X	X
loudness	loudness metadata and handling	23003-4	6		X	X	X
	loudness compensation	23008-3			X	X	X
MHAS	MPEG-H 3D Audio stream	23008-3	14		X	X	X
	truncation message and CRC packet type, ASI packet type	23008-3			X	X	X
file format	carriage of MPEG-H 3D audio in ISO base media file format	23008-3			f		
interfaces and processing	interfaces and processing for interaction data and local setup info	23008-3	17,18		X	X	X
carriage of generic data	carriage of generic data for the interaction with system engine	23008-3			X	X	
TCC	tonal component coding	23008-3			X		
IC	internal channel	23008-3			X		
HREP	high resolution envelope processing	23008-3			X		

^a Restrictions apply dependent on the levels.

^b Implementation of binaural rendering is only mandated if headphone reproduction is supported.

^c Multi-band DRC-1 shall be applied in the STFT domain of the TD format converter.

^d The TD format converter downmix shall be applied for downmixing.

^e In order to achieve target complexity for the LC profile at a given level, study Annex G.

^f File format encapsulation is independent of the profile that is used for the bitstream. A profile level indicator is part of the file format specification (see subclause 20.4).