INTERNATIONAL STANDARD ISO/IEC 23003-1:2007
TECHNICAL CORRIGENDUM 4

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INTERNATIONAL ELECTROTECHNICAL COMMISSION • МЕЖДУНАРОДНАЯ ЭЛЕКТРОТЕХНИЧЕСКАЯ КОМИССИЯ • COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

Information technology — MPEG audio technologies —

Part 1:
MPEG Surround

TECHNICAL CORRIGENDUM 4

Technologies de l'information — Technologies audio MPEG —

Partie 1: Ambiance MPEG

RECTIFICATIF TECHNIQUE 4

Technical Corrigendum 4 to ISO/IEC 23003-1:2007 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information.*

In 3.3.1, replace:

$y = \log_{10}(x)$ is the base-2 logarithm of x.

with:

$y = \log_{10}(x)$ is the base-10 logarithm of x.

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In 4.6, replace:

The surround gain is applied to each surround channel (i.e., left surround and right surround for a 5.1 configuration) in the PCM domain after QMF synthesis.

with:

The surround gain is applied to each surround channel in the PCM domain after QMF synthesis (i.e. left surround and right surround for a 5.1 configuration with the addition of rear left surround and rear right surround for a 727_2 or 757_2 configuration).

At the end of 4.6, add:

The application of pre- and post-gains is dependent on the output configuration according to the following table. In the case of binaural output, the surround gain is explicitly included in the formulas for power reconstruction (see 6.11.4)

Table X - Application of pre- and post-gains

	Stereo output	**Binaural output**	**Multichannel output**
Surround gain	no	yes	yes
LFE gain	no	no	yes
Downmix gain	no	no	yes

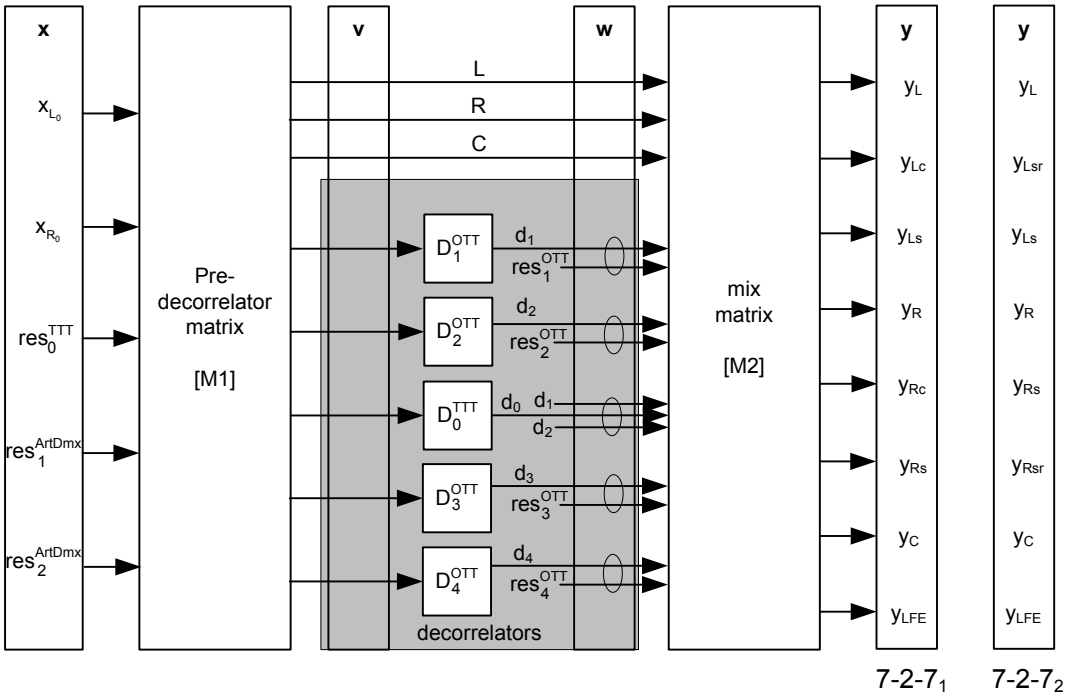
In 6.4.3.2.1 replace:

$$\mathbf{v}^{n,k} = \mathbf{M}_1^{n,k}\mathbf{x}^{n,k} = \mathbf{M}_1^{n,k}\begin{bmatrix} x_{\mathrm{L}_0}^{n,k} \\ x_{\mathrm{R}_0}^{n,k} \\ x_{\mathrm{res}_0^{\mathrm{TTT}}}^{n,k} \\ x_{\mathrm{res}_1^{\mathrm{ArtDmx}}}^{n,k} \\ x_{\mathrm{res}_2^{\mathrm{ArtDmx}}}^{n,k} \end{bmatrix} = \begin{bmatrix} v_{\mathrm{L}}^{n,k} \\ v_{\mathrm{R}}^{n,k} \\ v_{\mathrm{C}}^{n,k} \\ v_{\mathrm{OTT}_2}^{n,k} \\ v_{\mathrm{OTT}_1}^{n,k} \\ v_{\mathrm{TTT}_0}^{n,k} \end{bmatrix}$$

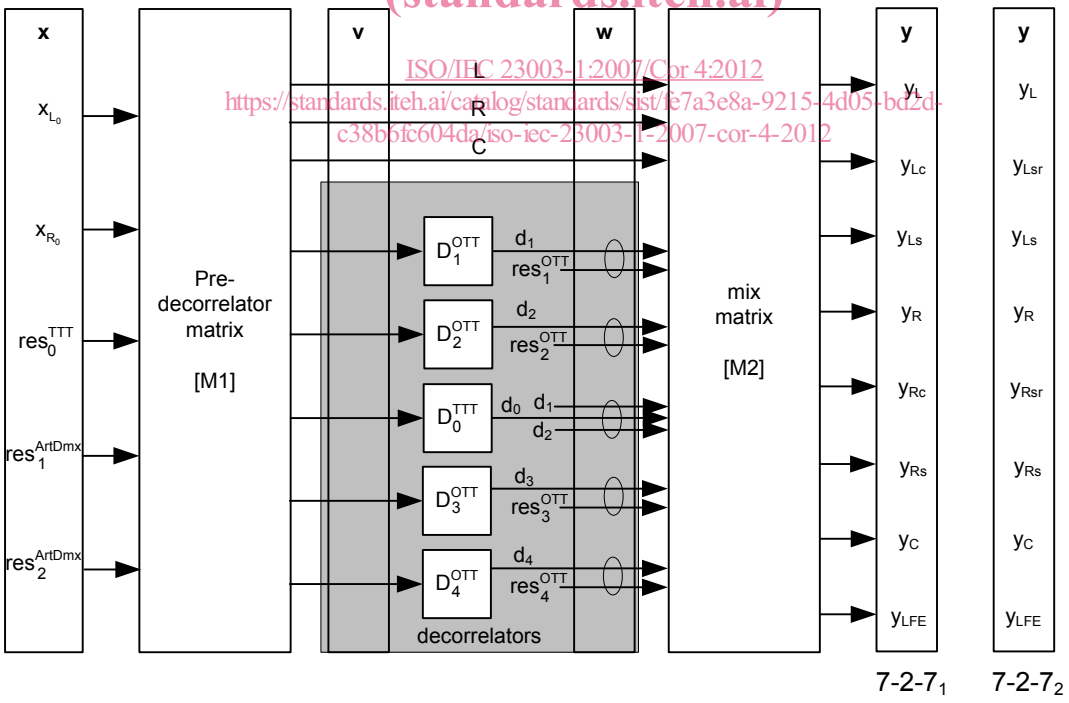
with:

$$\mathbf{v}^{n,k} = \mathbf{M}_1^{n,k}\mathbf{x}^{n,k} = \mathbf{M}_1^{n,k}\begin{bmatrix} x_{\mathrm{L}_0}^{n,k} \\ x_{\mathrm{R}_0}^{n,k} \\ x_{\mathrm{res}_0^{\mathrm{TTT}}}^{n,k} \\ x_{\mathrm{res}_1^{\mathrm{ArtDmx}}}^{n,k} \\ x_{\mathrm{res}_2^{\mathrm{ArtDmx}}}^{n,k} \end{bmatrix} = \begin{bmatrix} v_{\mathrm{L}}^{n,k} \\ v_{\mathrm{R}}^{n,k} \\ v_{\mathrm{C}}^{n,k} \\ v_{\mathrm{OTT}_1}^{n,k} \\ v_{\mathrm{OTT}_2}^{n,k} \\ v_{\mathrm{TTT}_0}^{n,k} \end{bmatrix}$$

In 6.4.4.1, replace Figure 27:



with:



In 6.4.4.1 replace (2 times):

Figure 26

with:

Figure 28

In 6.4.4.2.1 replace:

$$\mathbf{y}^{n,k} = \mathbf{M}_2^{n,k}\mathbf{w}^{n,k} = \mathbf{M}_2^{n,k}\begin{bmatrix} w_{\mathrm{L}}^{n,k} \\ w_{\mathrm{R}}^{n,k} \\ w_{\mathrm{C}}^{n,k} \\ w_{\mathrm{OTT}_1}^{n,k} \\ w_{\mathrm{OTT}_2}^{n,k} \\ w_{\mathrm{TTT}_0}^{n,k} \\ w_{\mathrm{OTT}_3}^{n,k} \\ w_{\mathrm{OTT}_4}^{n,k} \end{bmatrix} = \begin{bmatrix} y_{\mathrm{L}}^{n,k} \\ y_{\mathrm{Lsr}}^{n,k} \\ y_{\mathrm{Ls}}^{n,k} \\ y_{\mathrm{R}}^{n,k} \\ y_{\mathrm{Rs}}^{n,k} \\ y_{\mathrm{Rsr}}^{n,k} \\ y_{\mathrm{C}}^{n,k} \\ y_{\mathrm{LFE}}^{n,k} \end{bmatrix}$$ for the 7-2-7_2 configuration.

with:

$$\mathbf{y}^{n,k} = \mathbf{M}_2^{n,k}\mathbf{w}^{n,k} = \mathbf{M}_2^{n,k}\begin{bmatrix} w_{\mathrm{L}}^{n,k} \\ w_{\mathrm{R}}^{n,k} \\ w_{\mathrm{C}}^{n,k} \\ w_{\mathrm{OTT}_1}^{n,k} \\ w_{\mathrm{OTT}_2}^{n,k} \\ w_{\mathrm{TTT}_0}^{n,k} \\ w_{\mathrm{OTT}_3}^{n,k} \\ w_{\mathrm{OTT}_4}^{n,k} \end{bmatrix} = \begin{bmatrix} y_{\mathrm{L}}^{n,k} \\ y_{\mathrm{Lsr}}^{n,k} \\ y_{\mathrm{Ls}}^{n,k} \\ y_{\mathrm{R}}^{n,k} \\ y_{\mathrm{Rsr}}^{n,k} \\ y_{\mathrm{Rs}}^{n,k} \\ y_{\mathrm{C}}^{n,k} \\ y_{\mathrm{LFE}}^{n,k} \end{bmatrix}$$ for the 7-2-7_2 configuration.

In 6.4.4.2.1 replace:

Figure 26

with:

Figure 28

In 6.4.5, Figure 32, replace (2 times):

CLD_3, ICC_3

with:

CLD_0, ICC_0

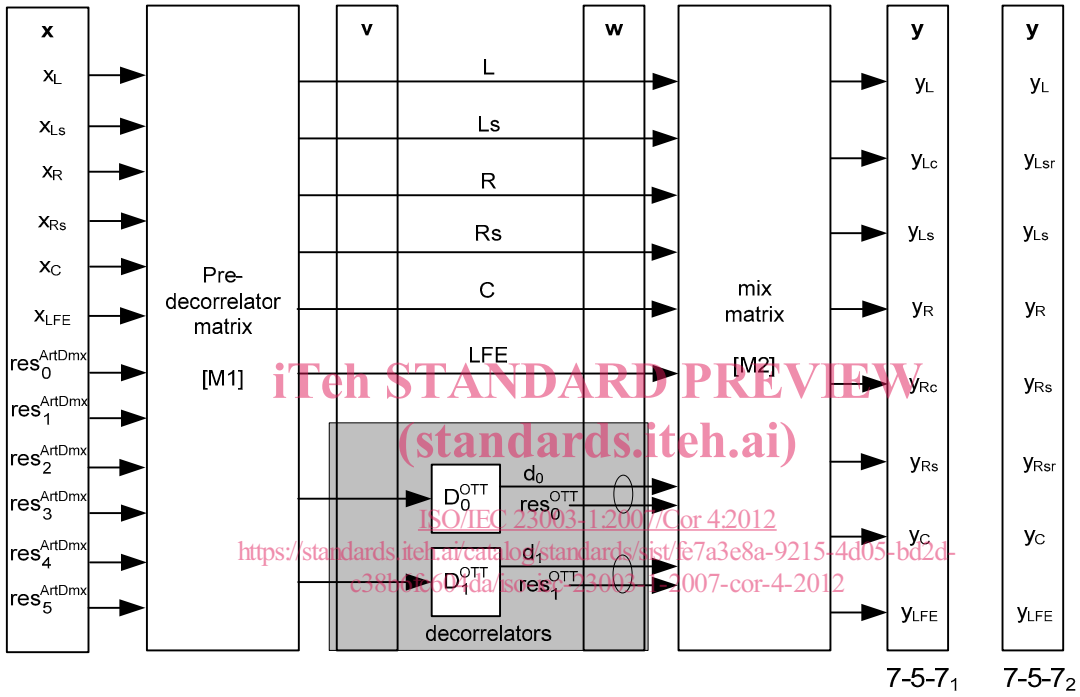
In 6.4.5, Figure 32 replace (2 times):

CLD_4, ICC_4

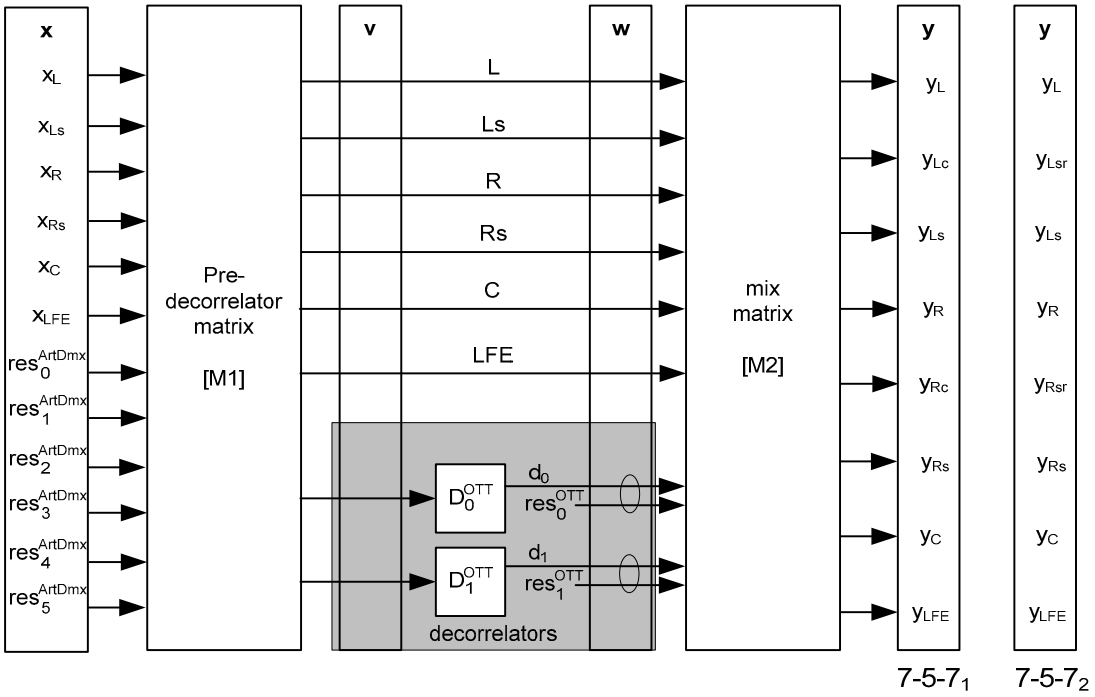
with:

CLD_1, ICC_1

In 6.4.5.1, replace Figure 30:



with:



In 6.4.5.2.1 replace:

Figure 26

with:

Figure 31

In 6.5.2.2.4.2, replace:

Figure 26

with:

Figure 28

In 6.5.3.6, replace:

Figure 26

with:

Figure 28

In 6.5.3.7, replace:

Figure 26

with:

Figure 31

In 6.10.7.1, replace Table 103:

	Low power decorrelators			
Configuration	Lattice IIR, LP0	Lattice IIR LP1	PS	No decorrelation
5-1-5$_1$	$D_0(\ )$	$D_1(\ )$	$D_2(\ ), D_3(\ )$	-
5-1-5$_2$	$D_0(\ )$	$D_3(\ ), D_4(\ )$	$D_1(\ )$	-
5-2-5	-	-	$D_1^{\mathrm{OTT}}(\ ), D_2^{\mathrm{OTT}}(\ )$	$D_0^{\mathrm{TTT}}(\ )$
7-2-7$_1$	$D_3(\ ), D_4(\ )$	-	$D_1^{\mathrm{OTT}}(\ ), D_2^{\mathrm{OTT}}(\ )$	$D_0^{\mathrm{TTT}}(\ )$
7-2-7$_2$	$D_3(\ ), D_4(\ )$	-	$D_1^{\mathrm{OTT}}(\ ), D_2^{\mathrm{OTT}}(\ )$	$D_0^{\mathrm{TTT}}(\ )$
7-5-7$_1$	-	-	$D_0(\ ), D_1(\ )$	-
7-5-7$_2$	-	-	$D_0(\ ), D_1(\ )$	-

with:

	Low power decorrelators			
Configuration	Lattice IIR, LP0	Lattice IIR, LP1	PS	No decorrelation
5-1-5$_1$	$D_0(\ )$	$D_1(\ )$	$D_2(\ ), D_3(\ )$	-
5-1-5$_2$	$D_0(\ )$	$D_3(\ ), D_4(\ )$	$D_1(\ )$	-
5-2-5	-	-	$D_1^{\mathrm{OTT}}(\ ), D_2^{\mathrm{OTT}}(\ )$	$D_0^{\mathrm{TTT}}(\ )$
7-2-7$_1$	$D_3(\ ), D_4(\ )$	-	$D_1^{\mathrm{OTT}}(\ ), D_2^{\mathrm{OTT}}(\ )$	$D_0^{\mathrm{TTT}}(\ )$
7-2-7$_2$	$D_3(\ ), D_4(\ )$	-	$D_1^{\mathrm{OTT}}(\ ), D_2^{\mathrm{OTT}}(\ )$	$D_0^{\mathrm{TTT}}(\ )$
7-5-7$_1$	-	-	$D_0(\ ), D_1(\ )$	-
7-5-7$_2$	-	-	$D_0(\ ), D_1(\ )$	-

In Annex G.3, replace all occurrences of:

S3AV

with:

S3AC