



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

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INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION  
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*.

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*In 3.3.1, replace:*

$y = \log_2(x)$  is the base-2 logarithm of  $x$ .

*with:*

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

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<sub>2</sub> or 757<sub>2</sub> 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 |
|----------------------|---------------|-----------------|---------------------|
| <b>Surround gain</b> | no            | yes             | yes                 |
| <b>LFE gain</b>      | no            | no              | yes                 |
| <b>Downmix gain</b>  | no            | no              | yes                 |

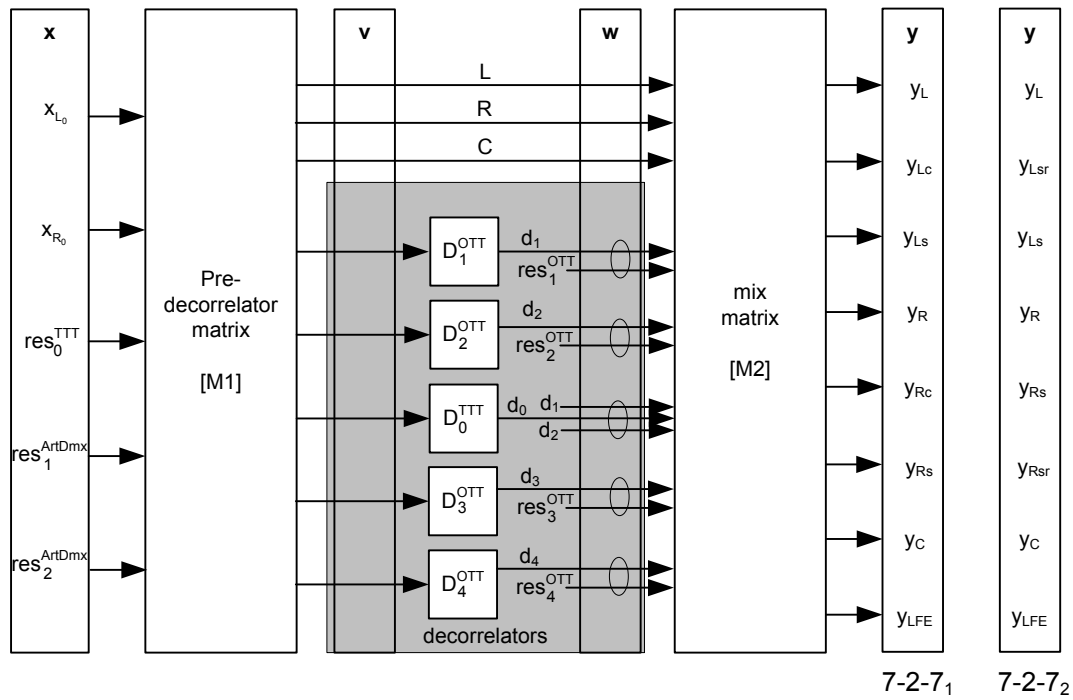
In 6.4.3.2.1 replace:

$$\mathbf{v}^{n,k} = \mathbf{M}_1^{n,k} \mathbf{x}^{n,k} = \mathbf{M}_1^{n,k} \begin{bmatrix} x_{L_0}^{n,k} \\ x_{R_0}^{n,k} \\ x_{\text{res}_0^{\text{TTT}}}^{n,k} \\ x_{\text{res}_1^{\text{ArtDmx}}}^{n,k} \\ x_{\text{res}_2^{\text{ArtDmx}}}^{n,k} \end{bmatrix} = \begin{bmatrix} v_L^{n,k} \\ v_R^{n,k} \\ v_C^{n,k} \\ v_{\text{OTT}_2}^{n,k} \\ v_{\text{OTT}_1}^{n,k} \\ v_{\text{TTT}_0}^{n,k} \end{bmatrix}$$

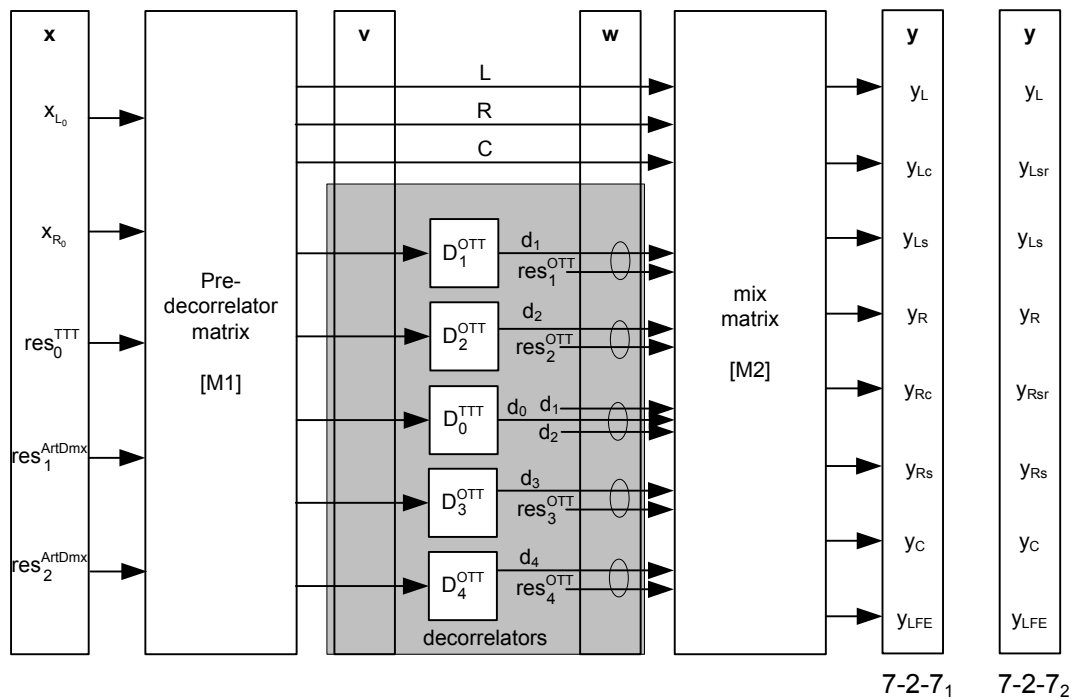
with:

$$\mathbf{v}^{n,k} = \mathbf{M}_1^{n,k} \mathbf{x}^{n,k} = \mathbf{M}_1^{n,k} \begin{bmatrix} x_{L_0}^{n,k} \\ x_{R_0}^{n,k} \\ x_{\text{res}_0^{\text{TTT}}}^{n,k} \\ x_{\text{res}_1^{\text{ArtDmx}}}^{n,k} \\ x_{\text{res}_2^{\text{ArtDmx}}}^{n,k} \end{bmatrix} = \begin{bmatrix} v_L^{n,k} \\ v_R^{n,k} \\ v_C^{n,k} \\ v_{\text{OTT}_1}^{n,k} \\ v_{\text{OTT}_2}^{n,k} \\ v_{\text{TTT}_0}^{n,k} \end{bmatrix}$$

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:

$$\mathbf{y}^{n,k} = \mathbf{M}_2^{n,k} \mathbf{w}^{n,k} = \mathbf{M}_2^{n,k} \begin{bmatrix} w_L^{n,k} \\ w_R^{n,k} \\ w_C^{n,k} \\ w_{OTT_1}^{n,k} \\ w_{OTT_2}^{n,k} \\ w_{TTT_0}^{n,k} \\ w_{OTT_3}^{n,k} \\ w_{OTT_4}^{n,k} \end{bmatrix} = \begin{bmatrix} y_L^{n,k} \\ y_{Lsr}^{n,k} \\ y_{Ls}^{n,k} \\ y_R^{n,k} \\ y_{Rs}^{n,k} \\ y_{Rsr}^{n,k} \\ y_C^{n,k} \\ y_{LFE}^{n,k} \end{bmatrix} \quad \text{for the 7-2-7}_2 \text{ configuration.}$$

with:

$$\mathbf{y}^{n,k} = \mathbf{M}_2^{n,k} \mathbf{w}^{n,k} = \mathbf{M}_2^{n,k} \begin{bmatrix} w_L^{n,k} \\ w_R^{n,k} \\ w_C^{n,k} \\ w_{OTT_1}^{n,k} \\ w_{OTT_2}^{n,k} \\ w_{TTT_0}^{n,k} \\ w_{OTT_3}^{n,k} \\ w_{OTT_4}^{n,k} \end{bmatrix} = \begin{bmatrix} y_L^{n,k} \\ y_{Lsr}^{n,k} \\ y_{Ls}^{n,k} \\ y_R^{n,k} \\ y_{Rsr}^{n,k} \\ y_{Rs}^{n,k} \\ y_C^{n,k} \\ y_{LFE}^{n,k} \end{bmatrix} \quad \text{for the 7-2-7}_2 \text{ configuration.}$$

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:

$CLD_0, ICC_0$

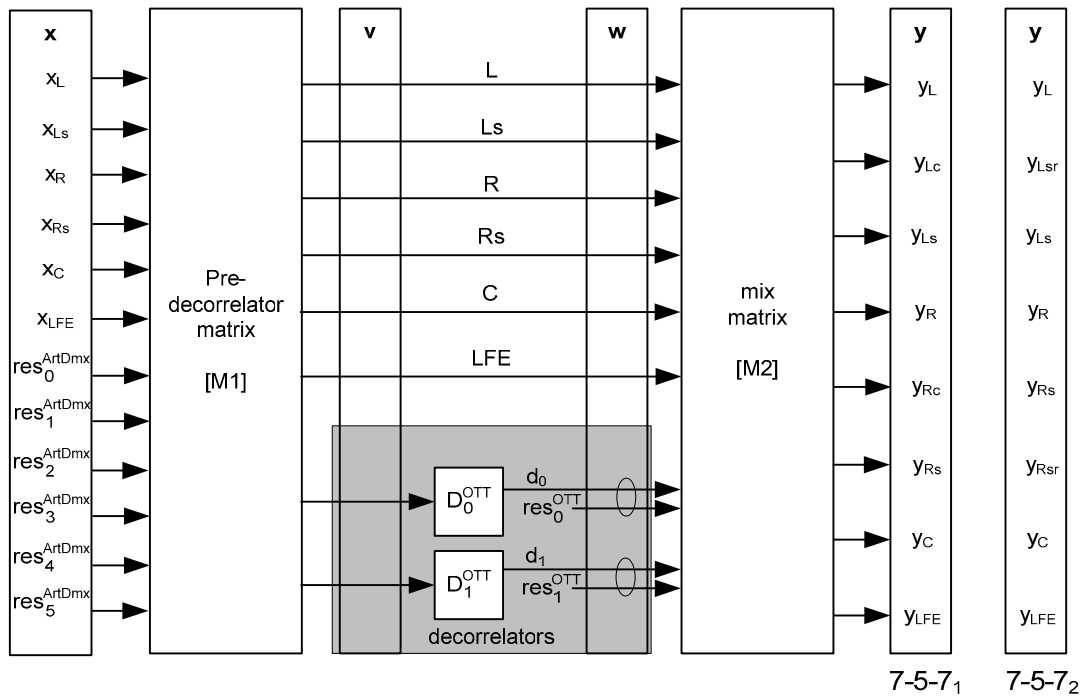
In 6.4.5, Figure 32 replace (2 times):

$CLD_4, ICC_4$

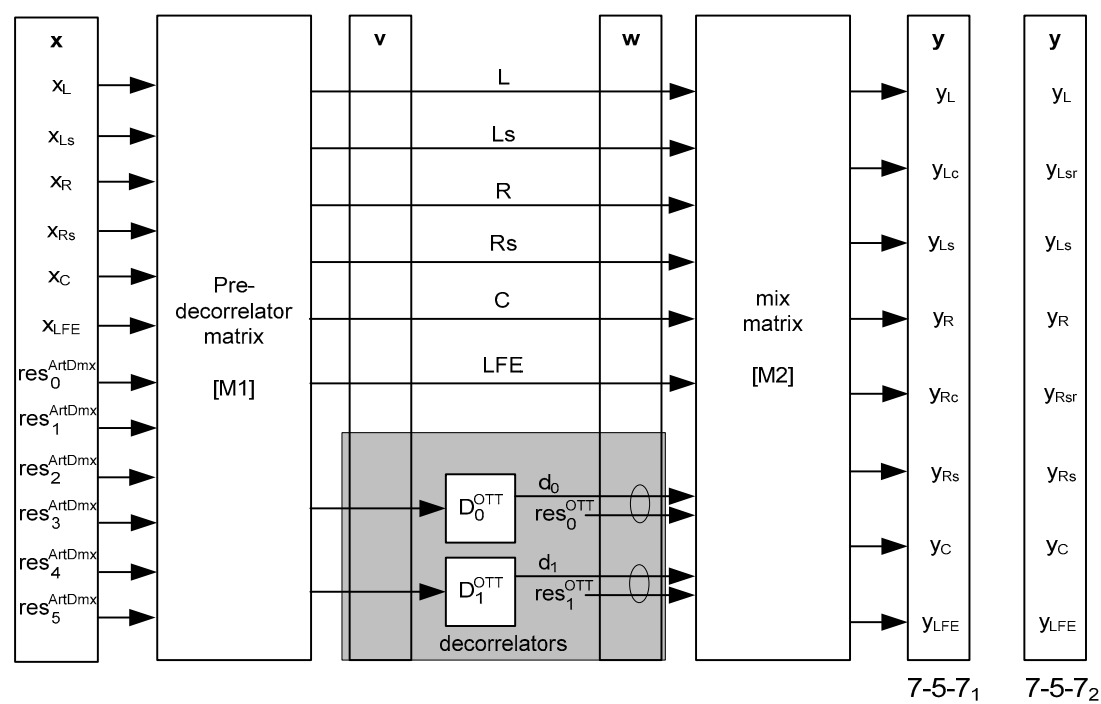
with:

$CLD_1, ICC_1$

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 <sub>1</sub> | $D_0()$                 | $D_1()$         | $D_2(), D_3()$                           | -                    |
| 5-1-5 <sub>2</sub> | $D_0()$                 | $D_3(), D_4()$  | $D_1()$                                  | -                    |
| 5-2-5              | -                       | -               | $D_1^{\text{OTT}}(), D_2^{\text{OTT}}()$ | $D_0^{\text{TTT}}()$ |
| 7-2-7 <sub>1</sub> | $D_3(), D_4()$          | -               | $D_1^{\text{OTT}}(), D_2^{\text{OTT}}()$ | $D_0^{\text{TTT}}()$ |
| 7-2-7 <sub>2</sub> | $D_3(), D_4()$          | -               | $D_1^{\text{OTT}}(), D_2^{\text{OTT}}()$ | $D_0^{\text{TTT}}()$ |
| 7-5-7 <sub>1</sub> | -                       | -               | $D_0(), D_1()$                           | -                    |
| 7-5-7 <sub>2</sub> | -                       | -               | $D_0(), D_1()$                           | -                    |

with:

|                    | Low power decorrelators |                  |  |                      |
|--------------------|-------------------------|------------------|--|----------------------|
| Configuration      | Lattice IIR, LP0        | Lattice IIR, LP1 | PS                                       | No decorrelation     |
| 5-1-5 <sub>1</sub> | $D_0()$                 | $D_1()$          | $D_2(), D_3()$                           | -                    |
| 5-1-5 <sub>2</sub> | $D_0()$                 | $D_3(), D_4()$   | $D_1()$                                  | -                    |
| 5-2-5              | -                       | -                | $D_1^{\text{OTT}}(), D_2^{\text{OTT}}()$ | $D_0^{\text{TTT}}()$ |
| 7-2-7 <sub>1</sub> | $D_3(), D_4()$          | -                | $D_1^{\text{OTT}}(), D_2^{\text{OTT}}()$ | $D_0^{\text{TTT}}()$ |
| 7-2-7 <sub>2</sub> | $D_3(), D_4()$          | -                | $D_1^{\text{OTT}}(), D_2^{\text{OTT}}()$ | $D_0^{\text{TTT}}()$ |
| 7-5-7 <sub>1</sub> | -                       | -                | $D_0(), D_1()$                           | -                    |
| 7-5-7 <sub>2</sub> | -                       | -                | $D_0(), D_1()$                           | -                    |

In Annex G.3, replace all occurrences of:

S3AV

with:

S3AC