INTERNATIONAL STANDARD ISO/IEC 23003-3:2012
TECHNICAL CORRIGENDUM 1

Published 2012-09-01

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 3:
Unified speech and audio coding

TECHNICAL CORRIGENDUM 1

Technologies de l'information — Technologies audio MPEG —

Partie 3: Discours unifié et codage audio

RECTIFICATIF TECHNIQUE 1

Technical Corrigendum 1 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.*

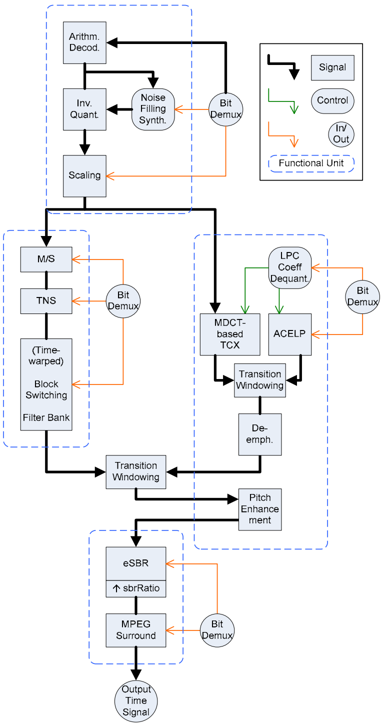
In 3.2 add at the end:

v[] = {a} This expression indicates that all elements of the array **v** shall be set to the value **a**.

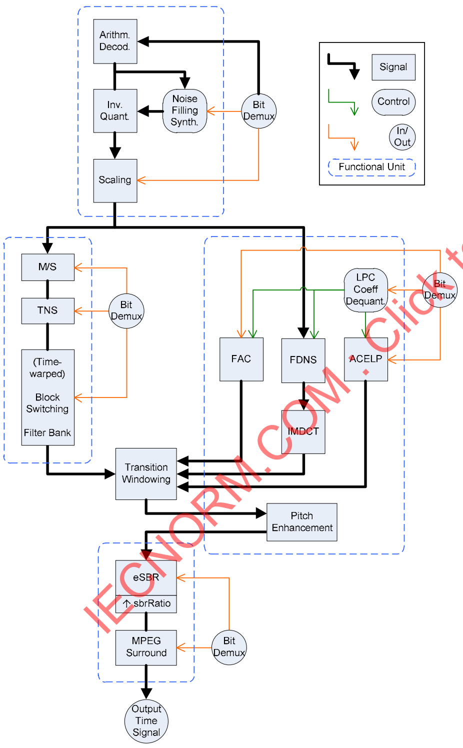
ICS 35.040 **Ref. No. ISO/IEC 23003-3:2012/Cor.1:2012(E)**

Published in Switzerland

In 4.1 replace the diagram:



with:



In 4.2. replace:

The filterbank / block switching tool applies the inverse of the frequency mapping that was carried out in the encoder. An inverse modified discrete cosine transform (IMDCT) is used for the filterbank tool. The IMDCT can be configured to support 120, 128, 240, 256, 480, 512, 960 or 1024 spectral coefficients.

with:

The filterbank / block switching tool applies the inverse of the frequency mapping that was carried out in the encoder. An inverse modified discrete cosine transform (IMDCT) is used for the filterbank tool. The IMDCT can be configured to support 96, 128, 192, 256, 384, 512, 768, or 1024 spectral coefficients.

In 5.2 in Table 6, replace:

```
[…]
        case: ID_USAC_EXT
            UsacExtElementConfig();
            break;
    }
}
```

NOTE: UsacSingleChannelElementConfig(), UsacChannelPairElementConfig(), UsacLfeElement-Config() and UsacExtElementConfig() signaled at position elemIdx refer to the corresponding elements in UsacFrame() at the respective position elemIdx.

with

```
[…]
        case: ID_USAC_EXT
            UsacExtElementConfig();
            break;
        }
    }
}
```

NOTE: UsacSingleChannelElementConfig(), UsacChannelPairElementConfig(), UsacLfeElement-Config() and UsacExtElementConfig() signaled at position elemIdx refer to the corresponding elements in UsacFrame() at the respective position elemIdx.

In 5.3.1 in Table 17 replace:

```
[…]
        case: ID_USAC_EXT
            UsacExtElement(usacIndependencyFlag);
            break;
    }
}
```

with

```
[…]
        case: ID_USAC_EXT
            UsacExtElement(usacIndependencyFlag);
            break;
        }
    }
}
```

In 5.3.1 in Table 21 replace:

```
[…]
        if (usacExtElementUseDefaultLength) {
            usacExtElementPayloadLength = usacExtElementDefaultLength;
        } else {
            usacExtElementPayloadLength = escapedValue(8,16,0);
        }
[…]
```

with:

```
[…]
        if (usacExtElementUseDefaultLength) {
            usacExtElementPayloadLength = usacExtElementDefaultLength;
        } else {
            usacExtElementPayloadLength;                          8     uimsbf
            if (usacExtElementPayloadLength==255) {
                valueAdd                                          16    uimsbf
                usacExtElementPayloadLength += valueAdd - 2;
            }
        }
[…]
```

In 5.3.2 in Table 23 replace:

```
[…]
    if (nrChannels == 2) {
        StereoCoreToolInfo(core_mode);
    }
[…]
```

with

```
[…]
    if (nrChannels == 2) {
        StereoCoreToolInfo(core_mode, indepFlag);
    }
[…]
```

In 5.3.2 in Table 24 replace:

Syntax	No. of bits	Mnemonic
StereoCoreToolInfo(core_mode)		
{		
if (core_mode[0] == 0 && core_mode[1] == 0) {		
tns_active;	**1**	**uimsbf**
common_window;	**1**	**uimsbf**
if (common_window) {		
ics_info();		
common_max_sfb;	**1**	**uimsbf**
if (common_max_sfb == 0) {		

if (window_sequence == EIGHT_SHORT_SEQUENCE) {		
max_sfb1;	**4**	**uimsbf**
} else {		
max_sfb1;	**6**	**uimsbf**
}		
} else {		
max_sfb1 = max_sfb;		
}		
max_sfb_ste = max(max_sfb, max_sfb1);		
ms_mask_present;	**2**	**uimsbf**
if (ms_mask_present == 1) {		
for (g = 0; g < num_window_groups; g++) {		
for (sfb = 0; sfb < max_sfb; sfb++) {		
ms_used[g][sfb];	**1**	**uimsbf**
}		
}		
}		
if (ms_mask_present == 3) {		
cplx_pred_data();		
} else {		
alpha_q_re[g][sfb] = 0;		
alpha_q_im[g][sfb] = 0;		
}		
}		
[…]		

with

Syntax	No. of bits	Mnemonic
StereoCoreToolInfo(core_mode, indepFlag)		
{		
if (core_mode[0] == 0 && core_mode[1] == 0) {		
tns_active;	**1**	**uimsbf**
common_window;	**1**	**uimsbf**
if (common_window) {		
ics_info();		
common_max_sfb;	**1**	**uimsbf**
if (common_max_sfb == 0) {		
if (window_sequence == EIGHT_SHORT_SEQUENCE) {		
max_sfb1;	**4**	**uimsbf**
} else {		
max_sfb1;	**6**	**uimsbf**
}		
} else {		
max_sfb1 = max_sfb;		
}		
max_sfb_ste = max(max_sfb, max_sfb1);		
ms_mask_present;	**2**	**uimsbf**
if (ms_mask_present == 1) {		
for (g = 0; g < num_window_groups; g++) {		
for (sfb = 0; sfb < max_sfb_ste; sfb++) {		
ms_used[g][sfb];	**1**	**uimsbf**
}		
}		
}		
if (ms_mask_present == 3) {		
cplx_pred_data(max_sfb_ste, indepFlag);		
} else {		

```
                alpha_q_re[][] = {0};
                alpha_q_im[][] = {0};
            }
        }
[…]
```

In 5.3.2 in Table 38 – Syntax of arith_data, replace:

pki = arith_get_pk(*c* + *esc_nb<<17)*

with:

pki = arith_get_pk(*c* + *(esc_nb<<17));*

In 6.1.1.1 replace:

usacSamplingFrequency Output sampling frequency of the decoder coded as unsigned integer value in case usacSamplingFrequencyIndex equals zero.

with:

usacSamplingFrequency Output sampling frequency of the decoder coded as unsigned integer value in case usacSamplingFrequencyIndex is equal to the escape value.

In 6.1.1.1 add definition of ***bs_pvc*** *by replacing:*

bs_interTes This flag signals the usage of the inter-TES tool in SBR.

with

bs_interTes This flag signals the usage of the inter-TES tool in SBR.

bs_pvc This flag signals the usage of the PVC tool in SBR.

In 6.1.1.2, replace:

bsStereoSbr This flag signals the usage of the stereo SBR in combination with MPEG Surround decoding.

with

bsStereoSbr This flag signals the usage of the stereo SBR in combination with MPEG Surround decoding. The value of bsStereoSbr is defined by stereoConfigIndex (see Table 72).

In 6.2.9.2.1 and in the headline of 6.2.9.2.3 replace:

scalefactor_data

with

scale_factor_data

In 6.2.9.2.4 replace

fd_channelffeh_stream()

with

fd_channel_stream()

In 6.2.9.4 replace:

As explain in ISO/IEC 14496-3:2009, 4.5.2.3.4, the width of the scalefactor bands is built in imitation of the critical bands of the human auditory system. For that reason the number of scalefactor bands in a spectrum and their width depend on the transform length and the sampling frequency. Table 4.129 to Table 4.147, in ISO/IEC 14496-3:2009, 4.5.4, list the offset to the beginning of each scalefactor band on the transform lengths 1024 (960) and 128 (120) and on the sampling frequencies.
For a transform length of 768 samples, the scale factor bands at $4/3 \cdot samplingfr\ equency$ are used. In case a shorter transform length (dependent on coreCoderFrameLength) is used, swb_offset_long_window and swb_offset_short_window are limited to the size of the transform length, and num_swb_long_window and num_swb_short_window is determined according to the following pseudo code

with:

As explained in ISO/IEC 14496-3:2009, 4.5.2.3.4, the width of the scalefactor bands is built in imitation of the critical bands of the human auditory system. For that reason the number of scalefactor bands in a spectrum and their width depend on the transform length and the sampling frequency. Table 4.129 to Table 4.147, in ISO/IEC 14496-3:2009, 4.5.4, list the offset to the beginning of each scalefactor band on the transform lengths 1024 and 128 and on the sampling frequencies (window length of 2048 and 256).
For a transform length of 768 samples, the same 1024-based scalefactor band tables are used, but those corresponding to $4/3 \cdot samplingfr\ equency$. In case a shorter transform length (dependent on coreCoderFrameLength) is used, swb_offset_long_window and swb_offset_short_window are limited to the size of the transform length, and num_swb_long_window and num_swb_short_window is determined according to the following pseudo code:

In 6.2.13.2 replace the text block:

bsOttBandsPhase defines the number of IPD parameter bands. If bsOttBandsPhasePresent==0, …

with:

bsOttBandsPhase defines the number of MPS parameter bands where phase coding is used. If bsOttBandsPhasePresent==0, …

In 7.4.3 replace the pseudo code:

```
/*Input variables*/
c       /* old state context */
i       /* Index of the 2-tuple to decode in the vector */
N       /* Window Length */
/*Output value*/
c       /*updated state context*/
c = arith_get_context(c,i,N) {
        c = c>>4;
        if (i<N/4-1)
                c = c + (q[0][i+1]<<12);
        c = (c&0xFFF0);
        if (i>0)
                c = c + (q[1][i-1]);
        if (i > 3) {
                if ((q[1][i-3] + q[1][i-2] + q[1][i-1]) < 5)
                        return(c+0x10000);
        }
        return (c);
}
```

with:

```
/*Input variables*/
c       /* old state context */
i       /* Index of the 2-tuple to decode in the vector */
N       /* Window Length */
/*Output value*/
c       /*updated state context*/
c = arith_get_context(c,i,N) {
        c = (c & 0xFFFF)>>4;
        if (i<N/4-1)
                c = c + (q[0][i+1]<<12);
        c = (c&0xFFF0);
        if (i>0)
                c = c + (q[1][i-1]);
        if (i > 3) {
                if ((q[1][i-3] + q[1][i-2] + q[1][i-1]) < 5)
                        return(c+0x10000);
        }
        return (c);
}
```

Further in 7.4.3 replace the following pseudo code:

```
/*input variables*/
offset          /* number of decoded 2-tuples */
N               /* Window length */
x_ac_dec        /* vector of decoded spectal coefficients */
arith_finish(x_ace_dec,offset,N)
{
        for (i=offset ;i<N/4;i++) {
                x_ac_dec[2*i] = 0;
                x_ac_dec[2*i+1] = 0;
                q[1][i] = 1;
        }
}
```

with:

```
/*helper function*/
void arith_rewind_bitstream(offset);
        /* move the bitstream position indicator backward by 'offset' bits*/

/*input variables*/
offset          /* number of decoded 2-tuples */
N               /* Window length */
x_ac_dec        /* vector of decoded spectal coefficients */
```



```
arith_finish(x_ace_dec,offset,N)
{
        arith_rewind_bitstream(14);

        for (i=offset ;i<N/4;i++) {
                x_ac_dec[2*i] = 0;
                x_ac_dec[2*i+1] = 0;
                q[1][i] = 1;
        }
}
```

In 7.4.3 in function `arith_decode()`, *replace:*

```
value = (val<<1)…
```

with:

```
value = (value<<1)…
```

Further in 7.4.3, replace:

```
high = low +(range*cum_freq[symbol-1])>>14 - 1
```

with:

```
high = low +((range*cum_freq[symbol-1])>>14) - 1;
```

In 7.4.3 replace:

…with the value *c&esc_nb<<17* as input argument,…

with

…with the value *c* + *(esc_nb<<17)* as input argument,…

In 7.4.3 replace:

…the function *get_pk()*…

with:

…the function *arith_get_pk()*…

Also in 7.4.3 replace:

…If the condition *(esc_nb>0 && m==0)* is true …

with:

…If the condition *(m==0 && lev>0)* is true,…

Further down in the same subclause 7.4.3, replace:

```
arith_finish(x_ace_dec,offset,N)
```

with:

```
arith_finish(x_ac_dec,offset,N)
```

In 7.5.1 replace:

The general description of the SBR tool can be found in ISO/IEC 14496-3:2009, 4.6.18.
The above mentioned SBR tool shall be modified as described below.

with:

The general description of the SBR tool can be found in ISO/IEC 14496-3:2009, 4.6.18.
The complex-exponential phase-shifting is outlined in ISO/IEC 14496-3:2009, 4.6.18.4.4. In USAC it shall be fixed to the default standard operation as defined in 4.6.18.4.1.
The above mentioned SBR tool shall be modified as described below.

In 7.5.1.1 add the following line:

numTimeSlots number of SBR envelope time slots; is always 16.

In 7.5.1.4 replace:

Within one SBR frame there can be either one or two noise floors. The noise floor time borders are derived from the SBR envelope time border vector according to: …

with:

Independent of bs_pvc_mode within one SBR frame there can be either one or two noise floors.
If bs_pvc_mode is zero, the noise floor time borders are derived from the SBR envelope time border vector according to: …

In 7.5.1.5.2 replace the following text:

If bs_pvc_mode in not zero, the SBR envelope time border vector of the current SBR frame, $\mathbf{t}_E$ is calculated according to:

$$\mathbf{t}_E = \begin{cases} [\mathbf{bs\_var\_len'},\ numTimeSlots + \mathbf{bs\_var\_len}] & , bs\_num\_env = 1 \\ [\mathbf{bs\_var\_len'},\ \mathbf{bs\_noise\_position},\ numTimeSlots + \mathbf{bs\_var\_len}] & , bs\_num\_env = 2 \end{cases}$$

where

$\mathbf{bs\_var\_len}$ ' is $\mathbf{bs\_var\_len}$ of the previous SBR frame.

$$bs\_num\_env = \begin{cases} 1 & \text{if bs\_noise\_position} = 0 \\ 2 & \text{otherwise} \end{cases}$$

with:

If bs_pvc_mode is not zero, the SBR envelope time border vector of the current SBR frame, $\mathbf{t}_E$ is calculated according to:

$$L_E = \begin{cases} 1 & \text{if bs\_noise\_position} = 0 \\ 2 & \text{otherwise} \end{cases}$$

$$\mathbf{t}_E = \begin{cases} \left[\mathbf{var\_len'},\ numTimeSlots + \mathbf{bs\_var\_len}\right] & , L_\mathrm{E} = 1 \\ \left[\mathbf{var\_len'},\ \mathbf{bs\_noise\_position},\ numTimeSlots + \mathbf{bs\_var\_len}\right] & , L_\mathrm{E} = 2 \end{cases}$$

where

$\mathbf{var\_len'} = \mathbf{t'}_E[L'_E] - numTimeSlots$ and $\mathbf{t'}_E$ is the time border vector $\mathbf{t}_E$ of the previous SBR frame and L'_E is the number of envelopes of the previous frame respectively. Note that if bs_pvc_mode'==1 (PVC active in previous frame), it follows that $\mathbf{var\_len'}$ is $\mathbf{bs\_var\_len}$ of the previous SBR frame.

In the same subclause 7.5.1.5.2 replace:

If bs_pvc_mode is not zero, the PVC SBR envelope time border vector of the current SBR frame, $\mathbf{t}_{EPVC}$, is calculated according to:

$$\mathbf{t}_{EPVC} = \begin{cases} \left[t_{first},\ numTimeSlots\right] & , bs\_num\_env = 1 \\ \left[t_{first},\ \mathrm{bs\_noise\_position},\ numTimeSlots\right] & , bs\_num\_env = 2 \end{cases}$$

where

$$t_{first} = \begin{cases} bs\_var\_bord\_1' & , bs\_pvc\_mode' = 0 \text{ and } bs\_pvc\_mode \neq 0 \\ 0 & , \text{otherwise} \end{cases}$$

with:

If bs_pvc_mode is not zero, the PVC SBR envelope time border vector of the current SBR frame, $\mathbf{t}_{EPVC}$, is calculated according to:

$$\mathbf{t}_{EPVC} = \begin{cases} \left[t_{first},\ numTimeSlots\right] & , L_\mathrm{E} = 1 \\ \left[t_{first},\ \mathrm{bs\_noise\_position},\ numTimeSlots\right] & , L_\mathrm{E} = 2 \end{cases}$$

where

$$t_{first} = \begin{cases} \mathbf{var\_len'} & , bs\_pvc\_mode' = 0 \text{ and } bs\_pvc\_mode \neq 0 \\ 0 & , \text{otherwise} \end{cases}$$

and $\mathbf{var\_len'} = \mathbf{t'}_E[L'_E] - numTimeSlots$ and $\mathbf{t'}_E$ is the time border vector $\mathbf{t}_E$ of the previous SBR frame and L'_E is the number of envelopes of the previous frame respectively.

In the same subclause 7.5.1.5.2 replace:

If bs_pvc_mode is not zero, the noise floor time borders vectors of the current SBR frame, $\mathbf{t}_Q$ is calculated according to:

$$\mathbf{t}_Q = \begin{cases} \left[\mathbf{t}_E(0), \mathbf{t}_E(1)\right] & , bs\_num\_noise = 1 \\ \left[\mathbf{t}_E(0), \mathbf{t}_E(1), \mathbf{t}_E(2)\right] & , bs\_num\_noise = 2 \end{cases}$$

where

$$bs\_num\_noise = \begin{cases} 1 & \text{if } bs\_noise\_position = 0 \\ 2 & \text{otherwise} \end{cases}$$

with:

If bs_pvc_mode is not zero, the noise floor time borders vectors of the current SBR frame, $\mathbf{t}_Q$ is calculated according to:

$$L_Q = L_E$$

$$\mathbf{t}_Q = \begin{cases} \left[\mathbf{t}_E(0), \mathbf{t}_E(1)\right] & , L_Q = 1 \\ \left[\mathbf{t}_E(0), \mathbf{t}_E(1), \mathbf{t}_E(2)\right] & , L_Q = 2 \end{cases}$$

In 7.5.1.5.2 on page 96 replace equations as follows:

else, bs_pvc_mode is not zero,

$$\mathbf{S}_{Mapped}(m-k_x,t) = \delta_s(i,t), l_i \le m < u_i, \begin{cases} u_i = \mathbf{F}(i+1,\mathbf{r}(l)) \\ l_i = \mathbf{F}(i,\mathbf{r}(l)) \end{cases}$$

for $0 \le i < \mathbf{n}(\mathbf{r}(l)), \mathbf{t}_E(l) \le t < \mathbf{t}_E(l+1), 0 \le l < L_E$
where

$$\delta_s(i,t) = \begin{cases} 1 & ,1 \in \left\{\mathbf{S}_{IndexMapped}(j-k_x,t) : \mathbf{F}(i,\mathbf{r}(l)) \le j < \mathbf{F}(i+1,\mathbf{r}(l)), \mathbf{t}_E(l) \le t < \mathbf{t}_E(l+1), 0 \le l < L_E\right\} \\ 0 & ,\text{otherwise} \end{cases}$$

with:

else, bs_pvc_mode is not zero,

$$\mathbf{S}_{Mapped}(m-k_x,t) = \delta_s(i,t), l_i \le m < u_i, \begin{cases} u_i = \mathbf{F}(i+1,\mathbf{r}(l)) \\ l_i = \mathbf{F}(i,\mathbf{r}(l)) \end{cases}$$

for $0 \le i < \mathbf{n}(\mathbf{r}(l)), \mathbf{t}_{EPVC}(l) \le t < \mathbf{t}_{EPVC}(l+1), 0 \le l < L_E$
where

$$\delta_s(i,t) = \begin{cases} 1 & ,1 \in \left\{\mathbf{S}_{IndexMapped}(j-k_x,t) : \mathbf{F}(i,\mathbf{r}(l)) \le j < \mathbf{F}(i+1,\mathbf{r}(l)), \mathbf{t}_{EPVC}(l) \le t < \mathbf{t}_{EPVC}(l+1), 0 \le l < L_E\right\} \\ 0 & ,\text{otherwise} \end{cases}$$

In 7.5.1.5.2 replace the equation of $\mathbf{Q}_{Mapped}$ in case of pvc_mode is not zero as follows.Replace:

$$\mathbf{Q}_{Mapped}(m-k_x,t) = \begin{cases} \mathbf{Q'}_{PreMapped}(m-k_x, t+numTimeSlots) & , 0 \le t < \mathbf{t'}_E(L'_E) - numTimeSlots \\ \mathbf{Q}_{PreMapped}(m-k_x,t) & , \mathbf{t}_E(0) \le t < \mathbf{t}_E(L_E) \end{cases}$$

with:

$$\mathbf{Q}_{Mapped}(m-k_x,t) = \begin{cases} \mathbf{Q'}_{PreMapped}(m-k_x, t+numTimeSlots) & , 0 \le t < \mathbf{t}_E(0) \\ \mathbf{Q}_{PreMapped}(m-k_x,t) & , \mathbf{t}_E(0) \le t < \mathbf{t}_E(L_E) \end{cases}$$

In 7.5.1.5.2 replace the equation for $\mathbf{S}_{IndexMapped}$ in case of pvc_mode is not zero as follows. Replace:

$$\mathbf{S}_{IndexMapped}(m-k_x,t)=\begin{cases}\mathbf{S'}_{IndexPreMapped}(m-k_x,t+numTimeSlots), & 0\le t<\mathbf{t'}_E(L'_E)-numTimeSlots\\ \mathbf{S}_{IndexPreMapped}(m-k_x,t) & ,\mathbf{t}_E(0)\le t<\mathbf{t}_E(L_E)\end{cases}$$

with:

$$\mathbf{S}_{IndexMapped}(m-k_x,t)=\begin{cases}\mathbf{S'}_{IndexPreMapped}(m-k_x,t+numTimeSlots), & 0\le t<\mathbf{t}_E(0)\\ \mathbf{S}_{IndexPreMapped}(m-k_x,t) & ,\mathbf{t}_E(0)\le t<\mathbf{t}_E(L_E)\end{cases}$$

In 7.5.1.5.4 replace equations as follows:

else, *bs_pvc_mode* is not zero,

$$\mathbf{Q}_M(m,t)=\sqrt{\mathbf{E}_{OrigMapped}(m,t)\cdot\frac{\mathbf{Q}_{Mapped}(m,t)}{1+\mathbf{Q}_{Mapped}(m,t)}},0\le m<M,\mathbf{t}_E(l)\le t<\mathbf{t}_E(l+1),0\le l<L_E$$

with:

else, *bs_pvc_mode* is not zero,

$$\mathbf{Q}_M(m,t)=\sqrt{\mathbf{E}_{OrigMapped}(m,t)\cdot\frac{\mathbf{Q}_{Mapped}(m,t)}{1+\mathbf{Q}_{Mapped}(m,t)}},\quad 0\le m<M,\quad \mathbf{t}_{EPVC}(l)\le t<\mathbf{t}_{EPVC}(l+1),\quad 0\le l<L_E$$

Further, replace:

else, *bs_pvc_mode* is not zero,

$$\mathbf{S}_M(m,t)=\sqrt{\mathbf{E}_{OrigMapped}(m,t)\cdot\frac{\mathbf{S}_{IndexMapped}(m,t)}{1+\mathbf{Q}_{Mapped}(m,t)}},0\le m<M,\mathbf{t}_E(l)\le t<\mathbf{t}_E(l+1),0\le l<L_E$$

with:

else, *bs_pvc_mode* is not zero,

$$\mathbf{S}_M(m,t)=\sqrt{\mathbf{E}_{OrigMapped}(m,t)\cdot\frac{\mathbf{S}_{IndexMapped}(m,t)}{1+\mathbf{Q}_{Mapped}(m,t)}},\quad 0\le m<M,\quad \mathbf{t}_{EPVC}(l)\le t<\mathbf{t}_{EPVC}(l+1),\quad 0\le l<L_E$$

In 7.5.2.2 replace:

$$polyfit\left(3,k_0,x\_lowband,lowEnv,lowEnvSlope\right);$$

with:

$$\mathrm{polyfit}\left(3,k_0,x\_lowband,lowEnv,polyCoeffs\right);$$

$$lowEnvSlope(k)=\sum_{i=0}^{3}polyCoeffs(3-i)\cdot x\_lowband(k)^i$$

In 7.5.5.2 replace:

$$lowEnv\left(k\right)=10\log_{10}\left(\frac{\phi_k\left(0,0\right)}{numTimeSlots\cdot RATE+6}\right)\quad ,0\le k<k_0$$

with:

$$lowEnv\left(k\right)=10\log_{10}\left(\frac{\phi_k\left(0,0\right)}{(numTimeSlots+3)\cdot RATE}\right)\quad ,0\le k<k_0$$

In 7.5.6.3 replace

$$E(ib,t)=\frac{\sum_{i=t_{HFGen}}^{RATE-1+t_{HFGen}}X_{low}(ib,RATE\cdot t+i)\cdot X^{*}_{low}(ib,RATE\cdot t+i)}{RATE}$$

with

$$E(ib,t)=\frac{\sum_{i=t_{HFAdj}}^{RATE-1+t_{HFAdj}}X_{low}(ib,RATE\cdot t+i)\cdot X^{*}_{low}(ib,RATE\cdot t+i)}{RATE}$$

In 7.5.6.5 replace:

$$\hat{E}(k,t+\frac{t_{HFGen}-t_{HFAdj}}{RATE})=10^{\frac{\hat{E}sg(ksg,t)}{10}}$$

with

$$\hat{E}(k,t)=10^{\frac{\hat{E}sg(ksg,t)}{10}}$$

In 7.9.3.2 replace:

Depending on the **window_sequence** and **window_shape** element different transform windows are used. A combination of the window halves described as follows offers all possible window_sequences. Window lengths specified below are dependent on the core-coder frame length. Numbers are listed for coreCoderFrameLength of 1024 (960, 768).