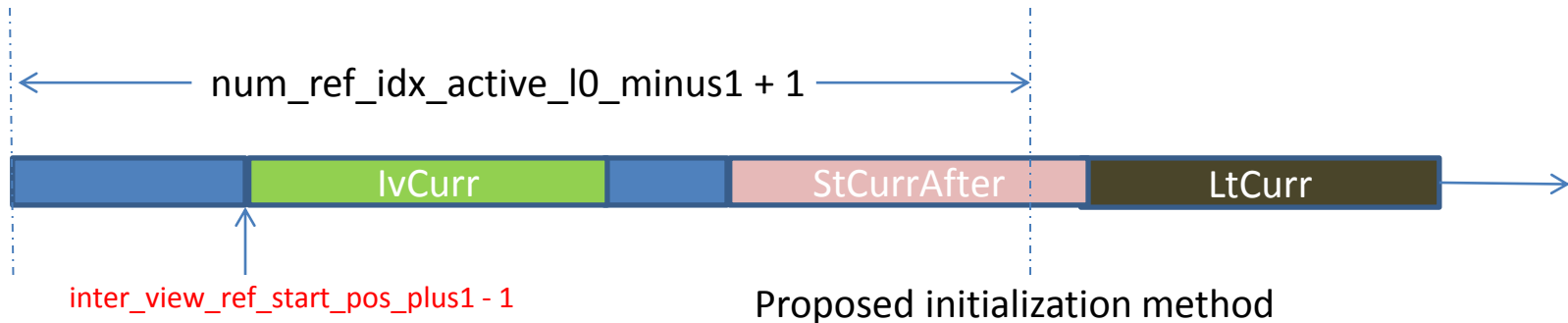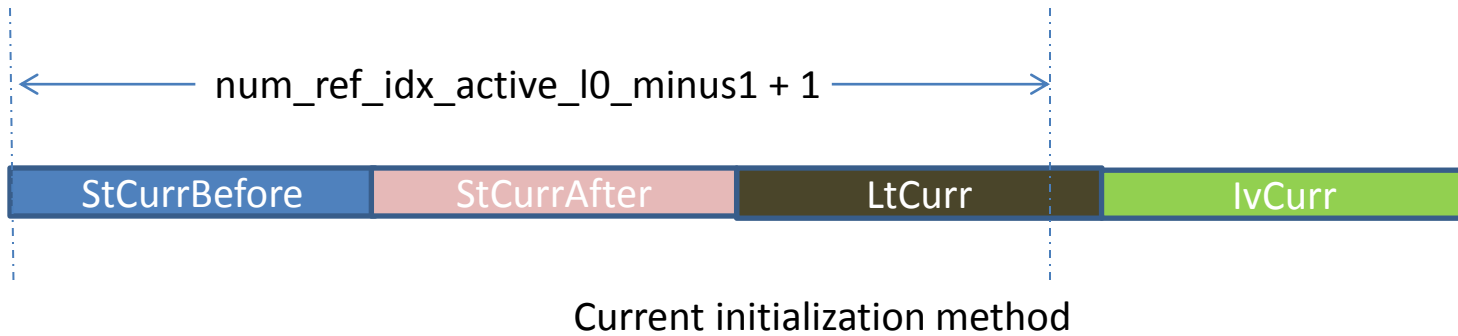# JCT3V-C0060: AHG7: Reference picture list initialization for MV-HEVC

Adarsh K. Ramasubramonian, Ying Chen, Li Zhang, Ye-Kui Wang (Qualcomm)

Inter-view reference picture start position for List 0

num_ref_idx_active_l0_minus1 + 1

| StCurrBefore | StCurrAfter | LtCurr | IvCurr |

Current initialization method

num_ref_idx_active_l0_minus1 + 1

| | IvCurr | | StCurrAfter | LtCurr |

inter_view_ref_start_pos_plus1 - 1

Proposed initialization method

Slice header extension changes

slice_header( ) {	Descriptor
first_slice_in_pic_flag	u(1)
…	
if(slice_header_extension_present_flag) {	
slice_header_extension_length	ue(v)
if(slice_type != I_SLICE)	
inter_view_ref_start_position_plus1	ue(v)
…	
}	
byte_alignment( )	
}	

```
if( !inter_view_ref_start_position_plus1 )
        IvRefStartPos = NumPocStCurrBefore + NumPocStCurrAfter + NumPocLtCurr
else
        IvRefStartPos = inter_view_ref_start_position_plus1 - 1
```

Decoding process for reference picture lists construction

The variable NumRpsCurrTempList0 is set equal to Max(num_ref_idx_l0_active_minus1 + 1, NumPocTotalCurr) and the list RefPicListTemp0 is constructed as follows:

```
cIdx = 0
while( cIdx < NumRpsCurrTempList0 ) {
            for( i = 0; i < NumPocStCurrBefore && cIdx < NumRpsCurrTempList0; cIdx++, i++ )
                        RefPicListTemp0[ cIdx ] = RefPicSetStCurrBefore[ i ]
            for( i = 0;  i < NumPocStCurrAfter && cIdx < NumRpsCurrTempList0; cIdx++, i++ )            (F-25)
                        RefPicListTemp0[ cIdx ] = RefPicSetStCurrAfter[ i ]
            for( i = 0; i < NumPocLtCurr && cIdx < NumRpsCurrTempList0; cIdx++, i++ )
                        RefPicListTemp0[ cIdx ] = RefPicSetLtCurr[ i ]
            for( i = 0; i < NumIvCurr && rIdx < NumRpsCurrTempList0; rIdx++, i++ )
                        RefPicListTemp0[ rIdx ] = RefPicSetIvCurr[ i ]
}
// Shift the pictures in the list to create space for inter-view reference pictures, if necessary
for( cIdx = NumRpsCurrTempList0 - 1; cIdx >= IvRefStartPos + NumPocIvCurr; cIdx -- )
            RefPicListTemp0[ cIdx ] = RefPicListTemp0[ cIdx - NumPocIvCurr ]
// Include the inter-view reference pictures
for( i=0, cIdx = IvRefStartPos; i < NumPocIvCurr; cIdx++, i++ )
            RefPicListTemp0[ cIdx ] = RefPicSetIvCurr[ i ]
```

The list RefPicList0 is constructed as follows:

```
for( cIdx = 0; cIdX ≤ num_ref_idx_l0_active_minus1; cIdx++)                                              (F-26)
                        RefPicList0[ cIdx ] = ref_pic_list_modification_flag_l0 ? RefPicListTemp0[ list_entry_l0[ cIdx ] ] :
```

Results

- No modification comments need to be sent for the common test conditions

	video 0	video 1	video 2	video only
Balloons	0.0%	-0.1%	-0.1%	-0.1%
Kendo	0.0%	-0.1%	-0.1%	-0.1%
Newspapercc	0.0%	-0.2%	-0.1%	-0.1%
GhostTownFly	0.0%	-0.1%	-0.1%	0.0%
PoznanHall2	0.0%	-0.2%	-0.2%	-0.1%
PoznanStreet	0.0%	-0.1%	-0.1%	0.0%
UndoDancer	0.0%	-0.1%	-0.1%	0.0%
1024x768	0.0%	-0.1%	-0.1%	-0.1%
1920x1088	0.0%	-0.1%	-0.1%	0.0%
average	**0.00%**	**-0.12%**	**-0.12%**	**-0.05%**

Thank you