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| *Title:* | **Proposed editorial improvements to HEVC Screen Context Coding Draft Text 4** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Proposed editorial improvements to Draft of HEVC | | |
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# Abstract

This document summarizes the proposed editorial improvements to HEVC Screen Context Coding Draft Text 4. It also identifies known issues that should be addressed in version 5 of the draft text. The accompanying documents, JCTVC-U1005-v1-V0031.docx and JCTVC-V0031\_fixes\_annexes\_F\_G\_v2, contain the proposed changes with revision marks relative to JCTVC-U1005-v1 and JCTVC-U1005-v2, respectively.

# Summary of the proposed changes

## Summary of the proposed editorial improvments and reported issues on general aspects

* The semantics of pps\_scaling\_list\_data\_present\_flag (in both clause 7 and clause F.7) had an ambiguity that it may be interpreted as the PPS modifying the referred SPS. This is clarified such that the PPS does not modify the referred SPS, and this flag may just affect how the applicable scaling data is derived.
* There is a restriction on sps\_max\_dec\_pic\_buffering\_minus1 and a one-picture-only restriction in the definition of the Main Still Picture profile, but not for the other still picture profiles, and there is no restriction on sps\_max\_dec\_pic\_buffering\_minus1 for the intra profiles. These missing constraints should have either been specified as part of the profile definitions or part of the semantics of the syntax elements general\_intra\_constraint\_flag and general\_one\_picture\_only\_constraint\_flag, preferably the latter. A systematic check for all other constraint flags here is needed as well. This issue should be discussed at this JCT-VC meeting.

## Summary of proposed editorial improvments to SCC aspects

* Editorial improvements suggested in JCTVC-V0032 have been integrated into JCTVC-U1005-v1-V0031.docx.
* Ticket #1413: A bit-stream constraint on pps\_palette\_predictor\_initializer\_present\_flag, adopted from JCTVC-U0036, was missed during the integration into JCTVC-U1005. This has been integrated into JCTVC-U1005-v1-V0031.docx. The constraint is as follows:

It is a requirement of bitstream conformance that the value of pps\_palette\_predictor\_initializer\_present\_flag shall be equal to 0 when either palette\_max\_size is equal to 0 or palette\_mode\_enabled\_flag is equal to 0.

* Ticket #1416: Added persistence scope information for two SEI messages, dependent RAP indication SEI message and coded region completion SEI message.

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| Dependent RAP indication | The access unit containing the SEI message |
| Coded region completion | The next slice segment header in the bitstream (when present) |

* Missing syntax conditions for signalling of sub-layer flags in the PTL syntax were added.
* The semantics of pps\_palette\_predictor\_initializer\_present\_flag had an ambiguity that it may be interpreted as the PPS modifying the referred SPS. This is clarified such that the PPS does not modify the referred SPS, and this flag may just affect how the applicable palette predictor initializers are derived.
* There were two constraints on the value of chroma\_format\_idc (in SPS) based on the value of monochrome\_palette\_flag (in PPS), in the semantics of monochrome\_palette\_flag. These were replaced with one constraint on the value of monochrome\_palette\_flag based on the value of chroma\_format\_idc.
* Some changes on storage of decoded current picture versions before and after invocation of the in-loop filtering process are made to resolve some editor's notes from Jens.
* Miscellaneous editorial improvements, typo corrections and bug fixes.

## Known issues in the text related to SCC

* intra\_boundary\_filtering\_disabled\_flag is not used by the decoding process, and the interaction of its semantics with other filtering controlling parameters should be checked.
* Inconsistent usage of chroma\_format\_idc and ChromaArrayType should be resolved.

## Summary of proposed editorial improvements in Annexes F and G

Editorial fixes for Annex F and G are provided in JCTVC-V0031\_fixes\_annexes\_F\_G\_v1. In particular, following changes might be considered after review:

* (VpsMaxLatencyPictures)  
  Issue: VpsMaxLatencyPictures is defined twice: in (7‑2) and (F‑15).  
  Fix: Renamed VpsMaxLatencyPictures in (F‑15) to MaxVpsLatencyPictures.
* (crossLayerBufferEmptyFlag)  
  Issue: In F.13.5.2.2 an used variable crossLayerBufferEmptyFlag is derived instead of listOfSubDpbsToEmpty.  
  Fix: Removed crossLayerBufferEmptyFlag and added derivation of listOfSubDpbsToEmpty as done in F.13.3.2.
* (NumPicTotalCurr):  
  Issue: Although required NumPicTotalCurr is not defined in P- or B- slices in IDR pictures of non-base layers. Consider e.g. the following scenario:  
  nal\_unit\_type is equal to IDR\_N\_LP  
  🡪 short\_term\_ref\_pic\_set\_sps\_flag is not present in the slice\_segment\_header( ) syntax structure and thus not defined  
  🡪 CurrRpsIdx is not defined  
  🡪 UsedByCurrPicS0[ CurrRpsIdx ] and UsedByCurrPicS1[ CurrRpsIdx ] in (F‑56) are not defined  
  🡪 NumPicTotalCurr is not defined  
  🡪 When slice\_type is e.g. equal to P, the condition "if( lists\_modification\_present\_flag && NumPicTotalCurr > 1 )" used in the slice\_segment\_header( ) syntax structure is not defined.  
  🡪 it is not clear whether to parse the ref\_pic\_lists\_modification( ) syntax structure  
    
  Fix: Ignore the not defined RPS, when deriving NumPicTotalCurr in IDR pictures.
* (NumActiveRefLayerPics)  
  Issue: Although required in some cases, NumActiveRefLayerPics0 and NumActiveRefLayerPics1 are not defined for the base layer. Consider e.g. the following scenario:  
    
  F.8.1.3 is invoked with nuh\_layer\_id equal to 0  
  🡪 The decoding process for a coded picture with nuh\_layer\_id equal to 0 as specified in clause F.8.1.4 is invoked.  
  🡪 The decoding process for reference picture lists construction as specified in F.8.3.4 is invoked.  
  🡪 (F‑65) in F.8.3.4 requires NumActiveRefLayerPics0 and NumActiveRefLayerPics1  
    
  F.8.1.3 is invoked with nuh\_layer\_id equal to 0  
  🡪 None of the decoding processes specified in G.8.1.2, H.8.1.2, or I.8.1.2 are invoked.  
  🡪 None of the decoding processes for inter-layer reference picture set as specified in G.8.1.3 or H.8.1.3, are invoked.  
  🡪 NumActiveRefLayerPics0 and NumActiveRefLayerPics1 are not defined  
    
  Fix: In F.8.1.4, set NumActiveRefLayerPics0 and NumActiveRefLayerPics1 equal to 0.
* (Condition on "no reference picture")  
  Issue: The decoding process for reference picture set as specified in 8.3.2 requires that there shall be no entry in RefPicSetStCurrBefore, RefPicSetStCurrAfter or RefPicSetLtCurr for which the entry is equal to "no reference picture". However, when 8.3.2 is invoked from F.8.3.2 for a picture with FirstPicInLayerDecodedFlag equal to 0, these pictures may not be present, but are intended to be generated later in the decoding process for generating unavailable reference pictures for pictures first in decoding order within a layer as specified in F.8.1.7  
    
  Fix: Modified the condition in F.8.3.2 to take FirstPicInLayerDecodedFlag into account
* (Inference poc\_reset\_period\_id) :  
  Issue: When the current condition is true, picA would always be the picture with the highest nuh\_layer\_id in its AU and the current picture would be in the same layer  
    
  Fix: My assumption is that "the" needs to be replace with "a".
* (Indices Multiview acquisition information SEI)  
  Issue: Wrong indices. This is actually copied and pasted from AVC spec. Thus, the same issue can be found there.
* (instrinsic\_param\_flag Multiview acquisition info SEI)  
  Issue: Typo. This is actually copied and pasted from AVC spec. Thus, the same issue can be found there.
* (possible clarifications): Some comments on text that seems not clear for me. Maybe you can check if a clarification is required.
* Removed separate\_colour\_flag from a constraint on the SPS representation format parameters in relative to their VPS counterparts. This was an integration mistake and was already corrected in the published version 3 of the ITU-T specification.
* SHVC Ticket #75
* Added a restriction on 'scaling\_list\_enabled\_flag equal to 1 for the SPS with nuh\_layer\_id equal to sps\_scaling\_list\_ref\_layer\_id', as discussed and agreed on the reflector. Same for the PPS syntax elements.