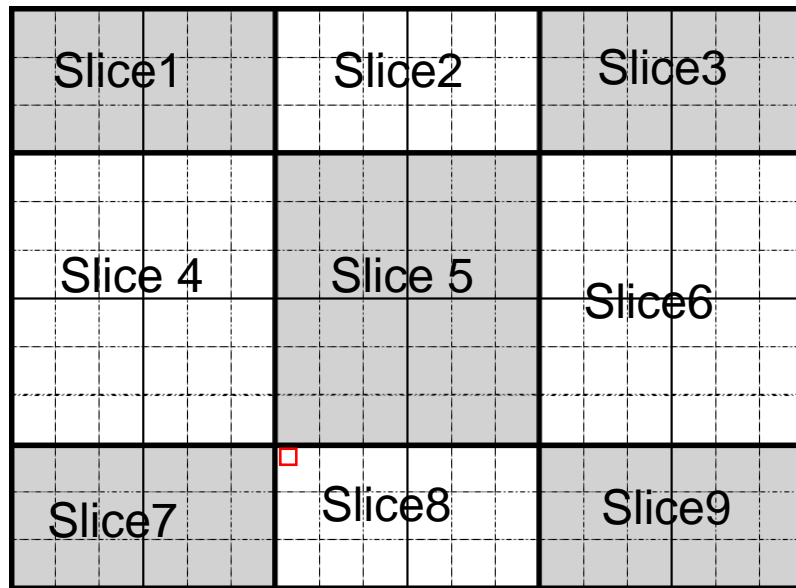


JVET-P0156: CE5-related: ALF padding process when raster scan slices are used

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Current ALF processing for normal rectangular slices



□ samples at the boundary of two slices

When loop filter across slices is disabled, then for ALF processing of the samples near the slice boundary

- Mirrored/ALF-VB padding is applied
- Current spec. text works correctly in this case

Fig. 2: ALF boundary processing for raster scan slices

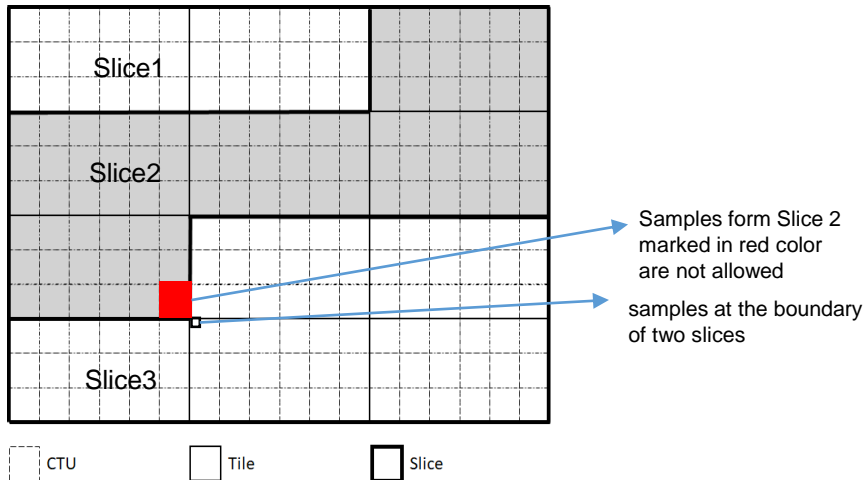


Fig. 2a

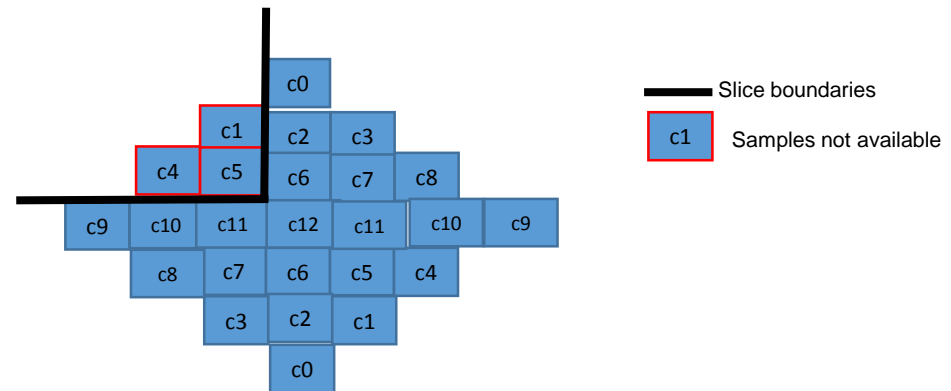


Fig. 2b, samples C1, C4, C5 which are diagonal to sample C12 (c12 is current filtered sample / center sample), belong to a different slice and therefore cannot be accessible

Problem: Current VVC specification text does not consider if diagonally adjacent samples are available or not

Fig. 3 Solution

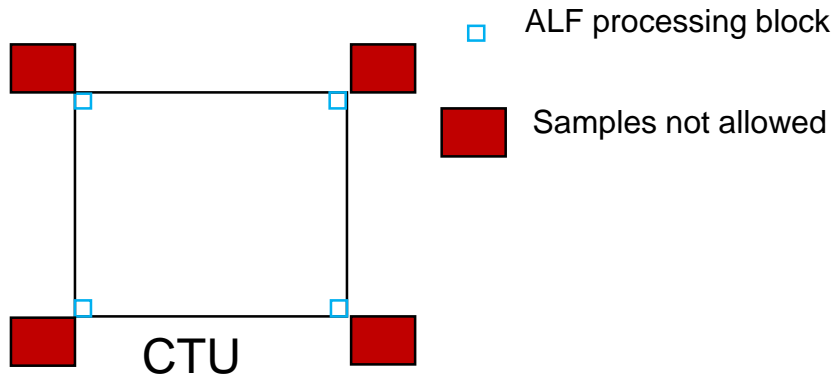


Fig. 3a, samples at 4 corners of CTU may have diagonally adjacent samples which are not accessible

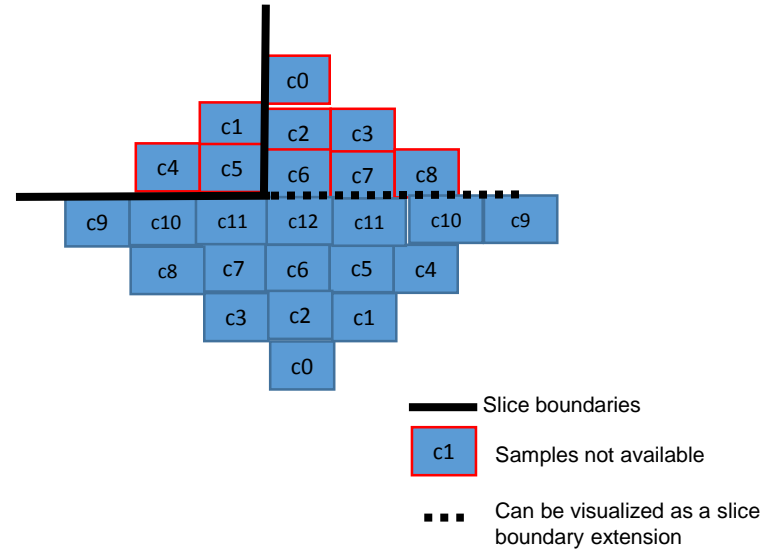


Fig. 3b, When diagonally adjacent samples (top-left in this case) are not available, then all the samples which are vertically adjacent to the current sample are also treated as not available. For e.g. when C1, C4, C5 are found to be not-available, then also the samples c0, c2, c3, c6, c7, c8 which are vertically adjacent to c12 are also treated as not available

- For the samples the corners of CTU, when diagonally adjacent samples belong to a different slice, then the samples are clipped to the respective boundaries of CTU (top or bottom), meaning virtually boundary processing is applied for processing of these respective samples.

Conclusion

- ALF padding process for raster scan slices is proposed
 - If diagonally adjacent samples belong to a different slice, then ALF VB padding is also applied.
- Specification text changes are attached along with the specification