

COMMENTS ON DEPENDENT SLICES

JCTVC-K0314



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INTRODUCTION



- **Dependent slices originally proposed in JCTVC-I0229 are intended to provide bitstream segmentation while still permitting cross-slice prediction**
- **May be unclear in current HEVC text whether dependent slices should be treated the same or differently than “independent slices” whenever the term “slice” is used**

EXAMPLE #1



■ Section 8.6.1 (Derivation process for quantization parameters):

1. The variable qP_{Y_PREV} is derived as follows.

- If one or more of the following conditions are true, qP_{Y_PREV} is set equal to $SliceQP_Y$.
 - **The current quantization group is the first quantization group in a slice.**
 - The current quantization group is the first quantization group in a tile.
 - The current quantization group is the first quantization group in a coding tree block row and `entropy_coding_sync_enabled_flag` is equal to 1.
- Otherwise, qP_{Y_PREV} is set equal to the luma quantization parameter QP_Y of the previous coding unit in decoding order, respectively.

- Conceptually, no reason dependent slices should reset QP prediction when all other forms of prediction are not reset
- HM software currently resets QP prediction at dependent slice boundaries
- Seems to contradict original intent of dependent slices proposal

EXAMPLE #2



■ Section 8.7.2 (Deblocking filter process):

The deblocking filter process shall be applied to all prediction block edges and transform block edges of a picture, except edges at the boundary of the picture, any edges for which the deblocking filter process is disabled by `slice_disable_deblocking_filter_flag`, any edges that coincide with tile boundaries when `loop_filter_across_tiles_enabled_flag` is equal to 0, and **any edges that coincide with upper or left slice boundaries of a particular slice when `slice_loop_filter_across_slices_enabled_flag` is equal to 0.**

- May be unclear whether dependent slice boundaries should be treated as slice edges for loop filtering
- HM software currently does not treat dependent slices as slice boundaries for the purposes of deblocking and SAO.
- Seems consistent with the original intent of dependent slices proposal

PROPOSED SOLUTION



- **This contribution seeks clarification and consistency in how dependent slices should be handled.**
- **It is recommended to clarify which uses of the term “slice” in the WD text are intended to refer to (normal) slices only, and to add specific exceptions for dependent slices in those instances.**
- **Similarly, it is also recommended to modify the HM software such that QP prediction is not reset at the start of each dependent slice.**



Thank you!