

AHG9: on number of slices constraint

JCTVC-K0201

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Problem statement

1. In HEVC Main profile only maximum number of slices per picture (MaxSlicePerPicture) is defined
2. The slice rate (number of slices per second) is in unbounded
 - Level 5.0 for example, MaxSlicePerPicture = 200
 - 4K x2K@30 => 6000 slices/sec
 - 1080p@120 =>24000 slices/sec
 - 720p@240 => 48000 slices/sec
3. Additional constraints are needed to restrict slice rate

Proposed solution 1 (constant #slice per second)

- a) In bitstreams conforming to the Main profile, the removal time of access unit 0 shall satisfy the constraint that the number of slice in picture 0 is less than or equal to

$$\text{Min}(\text{MaxSlicesPerPicture} * \text{MaxLumaSR} / \text{MaxLumaPS} * (t_r(0) - t_{r,n}(0)) + \text{MaxSlicesPerPicture} * \text{PicSizeInSamplesY} / \text{MaxLumaPS}, \text{MaxSlicesPerPicture}),$$

for the value of PicSizeInSamplesY of picture 0, where MaxSlicesPerPicture, MaxLumaSR and MaxLumaPS are the values specified in Table A-1 that apply to picture 0.

- a) In bitstreams conforming to the Main profile, the difference between consecutive removal time of access units n and n - 1 (with n > 0) shall satisfy the constraint that the number of slices in picture n is less than or equal to

$$\text{Min}(\text{MaxSlicesPerPicture} * \text{MaxLumaSR} / \text{MaxLumaPS} * (t_r(n) - t_r(n - 1)), \text{MaxSlicesPerPicture}),$$

where MaxSlicesPerPicture, MaxLumaSR and MaxLumaPS are the values specified in Table A-1 that apply to picture n.

Proposed solution 2 (constant #slice per sample)

1. In bitstreams conforming to the Main profile, the number of slices in picture n ($n \geq 0$) shall be less than or equal to

$$\text{MaxSlicesPerPicture} * \text{PicSizeInSamplesY} / \text{MaxLumaPS}$$

for the value of PicSizeInSamplesY of picture n , where $\text{MaxSlicesPerPicture}$ and MaxLumaPS are vaules specified in Table A-1.