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JCTVC-00270:
RExt: Proposal on
slice_scaling_list_disabled_flag

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Agenda

- ◆ Introduction/Problem Statement
- ◆ Proposal
- ◆ Conclusion

Introduction / Problem Statement [1/]

- ◆ **One of the applications of HEVC is to transmit mixed contents of natural video and text/graphics as shown in the next slide**
 - Natural video is originally in 4:2:0 format whereas text/graphics is in 4:4:4. If whole picture is coded as 4:4:4 redundant bits are consumed for natural video areas.
 - It is reported by JCTVC-L0250 if sequences, originally in 4:2:0 format, is upsampled into 4:4:4 and compressed, more bits by 14.2% is needed.

Natural video is originally in 4:2:0

Text/graphics is originally in 4:4:4



Introduction / Problem Statement [2/]

◆ One way to remove such redundancy is:

- A picture is divided into “video” tiles and “text/graphics” tiles.
- With “video” tiles, slice_cb/cr_qp_offsets with positive values are applied

◆ **Scaling list is useful for natural video contents and not useful for text/graphics contents, even if transform skip will not be applied.**

- **One problem to compress this kind of mixed contents is that under the current HEVC specification scaling_list_data() can be transmitted either in SPS and PPS, and cannot be enabled or disabled at sub-picture level.**

Proposal

- ◆ To solve the problem stated above, this contribution proposes to add a syntax element “slice_scaling_list_disabled_flag”.
- ◆ Note that JCTV-00237 contains similar proposal.

| ■ slice_segment_header() { | Descriptor |
|--|------------|
| ■ ... | u(1) |
| ■ slice_scaling_list_disabled_flag | u(1) |
| ■ slice_qp_delta | se(v) |
| ■ if(pps_slice_chroma_qp_offsets_present_flag) { | |
| ■ slice_cb_qp_offset | se(v) |
| ■ slice_cr_qp_offset | se(v) |
| ■ } | |
| ■ ... | |
| ■ } | |

slice_scaling_list_disabled_flag equals to 1 specifies that scaling list is disabled for the TUs associated with the slice_segment_header() regardless the value of scaling_list_enabled_flag in SPS. slice_scaling_list_disabled_flag equals to 0 specifies that scaling list transmitted in the associated SPS or PPS is applied the TUs associated with the slice_segment_header().

Conclusion

- ◆ One of the applications of HEVC is to transmit mixed contents of natural video and text/graphics via wireless display, remote desktop, cloud computing, etc.
- ◆ In coding such mixed contents scaling list is useful for natural video areas and not useful for text/graphics areas, but under the current HEVC specification scaling list can be enabled or disabled only at SPS- or PPS-level.
- ◆ To solve the problem it is proposed to add a syntax element “slice_scaling_list_disabled_flag” in slice_segment_header().
- ◆ It is recommended that the proposed syntax element be adopted into RExt WD.

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