

JVET-Q0169

AHG9/AHG12: Bitstream conformance requirements on subpicture ID

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Overall Summary

- Propose bitstream conformance requirements to guarantee that each subpicture in one coded picture shall have one unique subpicture ID
 - The maximum value of subpicture ID derived by the signalled subpicture ID length shall be greater than or equal to the number of subpictures.
 - A signalled subpicture ID shall be different from all other signalled subpicture IDs in the same picture.

Syntax Related to sps/pps/ph_subpic_id[]

- sps_subpic_id_present_flag
 - Subpicture ID mapping is present in the SPS
- sps/pps/ph_subpic_id_signalling_present_flag
 - Subpicture ID mapping is signalled in SPS, PPS, or PH
- sps/pps/ph_subpic_id_len_minus1
 - The number of bits used to represent the sps/pps/ph_subpic_id signalled in the SPS/PPS/PH
- sps/pps_num_subpic_minus1
 - The total number of subpictures in the coded picture

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Add bitstream conformance requirements for sps/pps/ph_subpic_id_len_minus1

Length of Subpicture ID and Number of Subpictures

- Add bitstream conformance requirements for `sps/pps/ph_subpic_id_len_minus1`
 - *The value of $(1 \ll (\text{sps/pps/ph_subpic_id_len_minus1} + 1))$ shall be greater than or equal to $(\text{sps/pps/ph_num_subpics_minus1} + 1)$.*
- Guarantee that each subpicture in one coded picture can have one unique subpicture ID

Require Subpicture IDs in a Coded Picture to Be All Different

- JVET-P2001-vE:

`ph_subpic_id[i]` specifies that subpicture ID of the *i*-th subpicture. The length of the `ph_subpic_id[i]` syntax element is `ph_subpic_id_len_minus1 + 1` bits.

The list `SubpicIdList[i]` is derived as follows:

```
for( i = 0; i <= sps_num_subpics_minus1; i++ )  
    SubpicIdList[ i ] = sps_subpic_id_present_flag ?  
        ( sps_subpic_id_signalling_present_flag ? sps_subpic_id[ i ] :  
          ( ph_subpic_id_signalling_present_flag ? ph_subpic_id[ i ] :  
            pps_subpic_id[ i ] ) ) : i
```

*It is a requirement of bitstream conformance that `SubpicIdList[i]` and `SubpicIdList[j]` shall be different, if *i* is not equal to *j*.*

Conclusion

- To guarantee that each subpicture in one coded picture shall have one unique subpicture ID
- Proposed bitstream conformance requirements:
 - The maximum value of subpicture ID derived by the signalled subpicture ID length shall be greater than or equal to the number of subpictures.
 - A signalled subpictures ID shall be different from all other signalled subpictures in the same picture.



Thank You