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Title: **Cleanup for checking CTU row boundary location in CCLM**

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Purpose: Proposal

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Abstract

In this contribution, the condition of checking the coding tree unit (CTU) row boundary location in luma downsampling process of cross-component linear model (CCLM) modes is corrected. In VVC Draft 7, the CTU row boundary location is checked by evaluating if the top position of the current chroma transform block (TB) is a multiple of luma coding tree block (CTB) size divided by 2, which is not valid for colour formats 4:2:2 and 4:4:4. In the proposed method, the condition is modified to check if the corresponding luma top position of the current chroma TB is a multiple of luma CTB size.

Introduction

In the 12th JVET meeting in Macao, using only one line of luma reconstructed samples from the above CTU for deriving linear model parameters [1][2] was adopted into the VVC Draft 3 [3]. However, since only 4:2:0 colour format was support in VVC Draft 3, the CTU row boundary location was found by checking if the top position of the current chroma TB is a multiple of luma CTB size divided by 2. Considering that 4:2:2 and 4:4:4 colour formats are also supported in VVC Draft 7, the condition of checking the CTU row boundary location should be corrected.

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LINKS

CARD

JVET-Q0194

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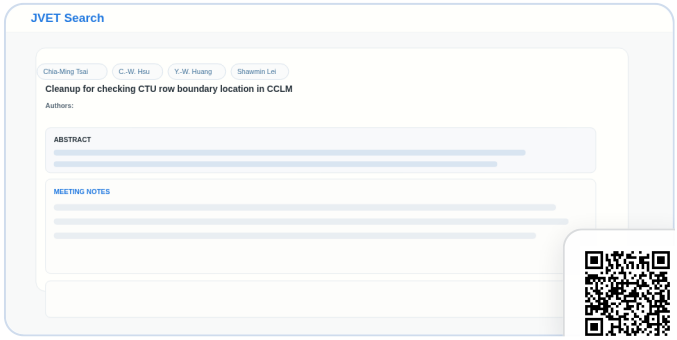

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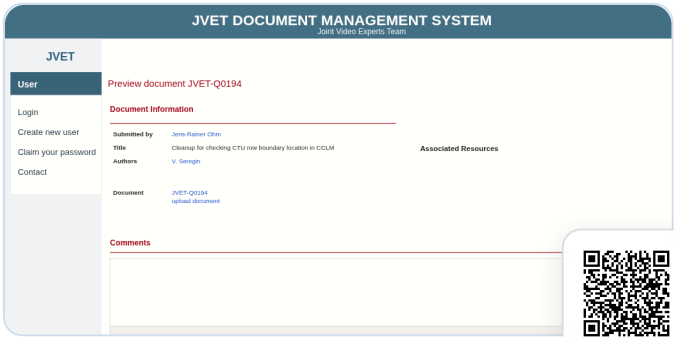

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MEETING NOTES

external meeting notes

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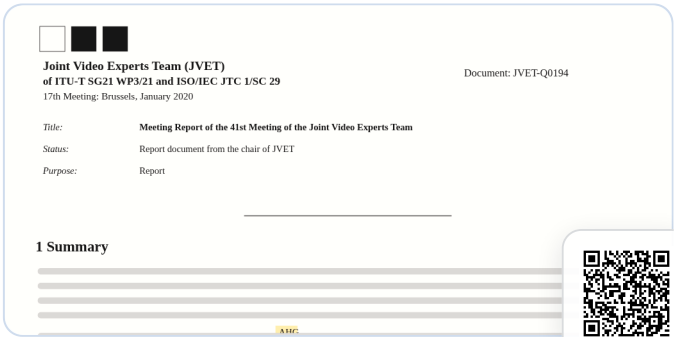

MEETING NOTES

JVET-Q0194 Cleanup for checking CTU row boundary location in CCLM [C.-M. Tsai, C.-W. Hsu, Y.-W. Huang, S.-M. Lei (MediaTek)]

In this contribution, the condition of checking the coding tree unit (CTU) row boundary location in luma downsampling process of cross-component linear model (CCLM) modes is corrected. In VVC Draft 7, the CTU row boundary location is checked by evaluating if the top position of the current chroma transform block (TB) is a multiple of luma coding tree block (CTB) size divided by 2, which is not valid for colour formats 4:2:2 and 4:4:4. In the proposed method, the condition is modified to check if the corresponding luma top position of the current chroma TB is a multiple of luma CTB size.

Apparently, there is no problem in the current software, as the results with and without that change are identical. Obviously, the software has some mechanism to identify where the CTU boundary is in the $$$ and 4:2:2 chroma cases.

This was again reviewed Thursday 16 Jan. It was confirmed by other experts that the suggested text change is needed, and also the software needs to be fixed.

> Decision (BF/text&SW): Adopt JVET_Q0194

CITATION

C.-M. Tsai, C.-W. Hsu, Y.-W. Huang, S.-M. Lei, "Cleanup for checking CTU row boundary location in CCLM", JVET-Q0194, 17th Meeting: Brussels, January 2020.

REFERENCES

1. C.-M. Tsai, C.-W. Hsu, C.-Y. Chen, T.-D. Chuang, Y.-W. Huang, S.-M. Lei, "CE3.5.8: Line buffer reduction for LM chroma", JVET-L0085, 12th Meeting: Macao, October 2018.
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3. B. Bross, J. Chen, S. Liu, "Versatile Video Coding (Draft 3)", JVET-L1001, 12th Meeting: Macao, October 2018.
4. B. Bross, J. Chen, S. Liu, Y.-K. Wang, "Versatile Video Coding (Draft 7)", JVET-P2001, 16th Meeting: Geneva, October 2019.