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| **Joint Collaborative Team on 3D Video Coding Extension Development**  **of ITU-T SG 16 WP 3 and ISO/IECJTC 1/SC 29/WG 11**  5th Meeting: Vienna, AT, 27 July – 2 Aug. 2013 | Document: JCT3V-E0159 |

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| *Title:* | **CE 5.h: Results on Removal of Overlap between DMM1 and DMM3** | | |
| *Status:* | Input Document | | |
| *Purpose:* | Proposal | | |
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# Abstract

This contribution reports results of JCT3V-D0067, which proposes to disable DMM3 when CTLB (collocated texture luma block) is not intra coded with mode 2~34. It is reported that there is negligible compress performance influence in both CTC (0.0% on synthesized view) and All Intra case (0.0% on synthesized view).

# Proposed Method

To remove the overlap between DMM1 and DMM3, we propose to disable DMM3 in case that CTLB is not intra coded or intra coded with mode 0 or 1. Therefore, DMM3 is simplified to:

1. When CTLB is intra coded with mode 2~34

Only a small predefined candidate Wedgelet pattern set is searched and the index of the best pattern is encoded.

1. Otherwise, DMM3 is disabled

# 3 Experimental Results

Proposed method is implemented into HTM 7.0r1 software, and proposed method is compared with HTM 7.0r1 under both CTC and All Intra Condition [1]. It can be seen that there is negligible coding efficiency influence after removing the overlap between DMM1 and DMM3.

Table 1: comparison of HTM-6.0 with proposed method (CTC)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | video 0 | video 1 | video 2 | video PSNR / video bitrate | video PSNR / total bitrate | synth PSNR / total bitrate | enc time | dec time |
| Balloons | 0.00% | -0.08% | -0.09% | -0.03% | -0.02% | 0.00% | 103.1% | 99.5% |
| Kendo | 0.00% | 0.03% | -0.05% | 0.00% | 0.05% | 0.07% | 99.5% | 99.9% |
| Newspaper\_CC | 0.00% | 0.04% | -0.04% | 0.01% | 0.02% | 0.05% | 107.3% | 99.3% |
| GT\_Fly | 0.00% | 0.14% | -0.14% | -0.01% | -0.01% | -0.03% | 98.9% | 99.9% |
| Poznan\_Hall2 | 0.00% | 0.03% | -0.15% | -0.04% | -0.07% | -0.02% | 94.5% | 99.9% |
| Poznan\_Street | 0.00% | 0.01% | 0.04% | 0.00% | -0.02% | -0.01% | 92.7% | 99.7% |
| Undo\_Dancer | 0.00% | -0.33% | -0.09% | -0.06% | -0.06% | 0.02% | 99.1% | 99.7% |
| 1024x768 | 0.00% | 0.00% | -0.06% | -0.01% | 0.02% | 0.04% | 103.3% | 99.6% |
| 1920x1088 | 0.00% | -0.04% | -0.09% | -0.03% | -0.04% | -0.01% | 96.3% | 99.8% |
| **average** | **0.00%** | **-0.02%** | **-0.07%** | **-0.02%** | **-0.02%** | **0.01%** | **99.3%** | **99.7%** |

Table 2: comparison of HTM-6.0 with proposed method (all intra)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | video 0 | video 1 | video 2 | video PSNR / video bitrate | video PSNR / total bitrate | synth PSNR / total bitrate | enc time | dec time |
| Balloons | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.04% | 92.3% | 100.0% |
| Kendo | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 95.9% | 100.1% |
| Newspaper\_CC | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.03% | 91.2% | 100.2% |
| GT\_Fly | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 95.1% | 99.8% |
| Poznan\_Hall2 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | -0.01% | 97.7% | 100.1% |
| Poznan\_Street | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.01% | 96.1% | 99.9% |
| Undo\_Dancer | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | -0.03% | 94.4% | 100.1% |
| 1024x768 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.02% | 93.1% | 100.1% |
| 1920x1088 | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 95.8% | 100.0% |
| **average** | **0.00%** | **0.00%** | **0.00%** | **0.00%** | **0.00%** | **0.01%** | **94.7%** | **100.0%** |

# Conclusion

This contribution proposes to remove the overlap between DMM1 and DMM3, and it has no compression efficiency loss. We recommend that proposed method is adopted into 3DV-HEVC.

# Reference

[1] D. Rusanovskyy, K. Müller, A. Vetro, “Common Test Conditions of 3DV Core Experiments”, Doc. JCT3V-D1100, Inchon, KR, 20–26 Apr. 2013.

# Patent rights declaration(s)

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