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| *Title:* | **CE1: Cross-check for A.1** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Information | | |
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| *Source:* | LG Electronics | | |

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# Abstract

This contribution reports cross-check result for CE1 experiment A.1 to evaluate R-D performance for motion data storage reduction (MDSR), which is in JCTVC-E701\_r2 [1], when bottom right (BR) position is used in combination with temporal motion vectors predictor (TMVP) for HM3.0 position. The experimental results perfectly match with the one provided by Canon [2] in the rate-distortion performance.

Experiment Description

Several input documents related to MDSR and TMVP were proposed in the 5th meeting in Geneva. The proposals can be differentiated by the location of representative motion data. The different proposed locations are illustrated in Figure 1 and Figure 2.



**Figure 1: Description of the positions for MDSR [1]**



*Note: In Collocated’ and HM3.0’, bottom-right of center is used instead of top-left of center.*

**Figure 2: Description of the positions for TMVP [1]**

It was agreed in the 5th meeting to investigate the best combination of motion data location for MDSR and TMVP within CE1. This contribution reports the performance when the combination of BR position for MDSR and HM3.0 for TMVP is in used.

Experimental Condition

The software to be tested was provided by Canon and its performance relative to the HM3.0 software was checked under the common test condition described in [3] and agreed performance measurement criteria described in [1]. The computing platform for this cross-check experiment is Window XP 64 bits on Intel i7 core.

Results

R-D performance and execution time of the software are summarized in Table 1 and Table 2. Detailed results are included in the attached excel sheet. It was confirmed that these results perfectly match with the one provided by Canon.

From our observation, the proposal has been well implemented into HM3.0 software. Encoding and decoding time when the proposed techniques are in used is the same as that of the anchors so that we may note that changing locations for MDSR to BR and TMVP to HM3.0 does not affect (or add additional) complexity.

Table 1: Experimental results of A.1 for Random Access

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Random access | | | Random access LoCo | | |
| Y BD-rate | U BD-rate | V BD-rate | Y BD-rate | U BD-rate | V BD-rate |
| Class A | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | -0.1 |
| Class B | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| Class C | 0.1 | 0.0 | 0.0 | 0.1 | 0.0 | 0.1 |
| Class D | 0.3 | 0.3 | 0.2 | 0.3 | 0.1 | 0.0 |
| Class E |  |  |  |  |  |  |
| All | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.0 |
| Enc Time[%] | 100% | | | 100% | | |
| Dec Time[%] | 100% | | | 100% | | |

Table 2: Experimental results of A.1 for Low Delay

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Low delay | | | Low delay LoCo | | |
|  | Y BD-rate | U BD-rate | V BD-rate | Y BD-rate | U BD-rate | V BD-rate |
| Class A |  |  |  |  |  |  |
| Class B | 0.2 | 0.2 | 0.2 | 0.2 | 0.0 | 0.2 |
| Class C | 0.3 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 |
| Class D | 0.3 | 0.0 | 0.6 | 0.4 | 0.3 | 0.1 |
| Class E | 0.3 | 0.3 | 0.1 | 0.3 | 0.5 | 0.8 |
| All | 0.3 | 0.2 | 0.3 | 0.3 | 0.2 | 0.3 |
| Enc Time[%] | 100% | | | 100% | | |
| Dec Time[%] | 100% | | | 100% | | |

Conclusion

The results of CE1 experiment A.1 reported by Canon has been verified and confirmed.

References

1. Joel Jung et al., “Description of Core Experiment CE1: Motion Data Storage Reduction”, JCTVC-E701\_r2, Geneva, March 2011.
2. Edouard Francois et al., “On memory compression for motion vector prediction”, JCTVC-E221\_r1, Geneva, March 2011.
3. Frank Bossen, “Common test conditions and software reference configurations”, JCTVC-D600, Daegu, January 2011.