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| *Title:* | **Cross-check of zero-delay non-local means filter (JCTVC-K0172)** | | |
| *Status:* | Input Document to JCT-VC | | |
| *Purpose:* | Information | | |
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# Abstract

This contribution reports the cross-check results of zero-delay non-local means filter proposed in JCTVC-K0172.

# Introduction

LCU-based framework for zero-delay non-local means filter is presented in document JCTVC-K0175. In this framework, strength of the filter is adjusted for each 2x2 sub-block. This contribution reports the cross-check results of this scheme. Table 1, 2, and 3 show the results of all intra / random access / low-delay B configurations.

The software version was HM8.0. The reference was generated by using the common test condition [1]. We complied provided software package on 64-bit Windows XP environment and the experiments were performed on the cluster PCs.

Table Results of intra angular prediction blending for all intra conditions

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **All Intra Main** | | | **All Intra HE10** | | |
|  | Y | U | V | Y | U | V |
| Class A | 0.0% | -1.4% | -1.5% | 0.0% | -1.5% | -1.5% |
| Class B | 0.1% | -1.1% | -1.7% | 0.1% | -1.5% | -2.2% |
| Class C | 0.0% | -1.1% | -2.0% | -0.2% | -2.0% | -2.9% |
| Class D | 0.0% | -1.1% | -1.8% | 0.0% | -1.8% | -2.9% |
| Class E | 0.0% | -3.8% | -3.8% | -0.2% | -4.1% | -4.1% |
| **Overall** | 0.0% | -1.6% | -2.0% | -0.1% | -2.0% | -2.6% |
|  | 0.0% | -1.6% | -2.0% | 0.0% | -2.0% | -2.6% |
| Class F | -0.5% | -1.1% | -1.3% | -1.1% | -2.0% | -2.1% |
| Enc Time[%] | 104% | | | 103% | | |
| Dec Time[%] | 114% | | | 114% | | |

Table Results of intra angular prediction blending for random access conditions

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Random Access Main** | | | **Random Access HE10** | | |
|  | Y | U | V | Y | U | V |
| Class A | -0.9% | -0.8% | -0.6% | -1.1% | -0.9% | -1.1% |
| Class B | -0.3% | -0.8% | -0.8% | -0.4% | -1.4% | -0.9% |
| Class C | -0.4% | -0.3% | -0.9% | -0.5% | -1.4% | -1.9% |
| Class D | -0.2% | -0.1% | -0.4% | -0.2% | -0.7% | -1.1% |
| Class E |  |  |  |  |  |  |
| **Overall** | -0.4% | -0.5% | -0.7% | -0.6% | -1.1% | -1.2% |
|  | -0.4% | -0.5% | -0.7% | -0.5% | -1.1% | -1.2% |
| Class F | -0.8% | -0.8% | -0.9% | -1.5% | -1.9% | -1.8% |
| Enc Time[%] | 101% | | | 101% | | |
| Dec Time[%] | 114% | | | 114% | | |

Table Results of intra angular prediction blending for low delay B conditions

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Low delay B Main** | | | **Low delay B HE10** | | |
|  | Y | U | V | Y | U | V |
| Class A |  |  |  |  |  |  |
| Class B | 0.1% | -1.2% | -2.6% | 0.0% | -3.4% | -3.8% |
| Class C | 0.0% | -0.6% | -1.3% | -0.2% | -2.7% | -3.4% |
| Class D | 0.0% | 0.0% | -1.1% | 0.0% | -1.8% | -2.8% |
| Class E | 0.9% | -2.1% | -2.2% | 0.6% | -4.1% | -4.0% |
| **Overall** | 0.2% | -0.9% | -1.8% | 0.0% | -3.0% | -3.5% |
|  | 0.2% | -0.9% | -1.8% | 0.0% | -2.9% | -3.5% |
| Class F | -0.1% | -0.2% | -0.4% | -1.1% | -1.4% | -2.2% |
| Enc Time[%] | 101% | | | 101% | | |
| Dec Time[%] | 116% | | | 115% | | |

# Conclusions

We have verified results reported in JCTVC-K0172. The results of the cross-check matched with NTT’s report. The encoding/decoding time also matched closely to those reported by the proponent.

# References

1. F. Bossen, “Common test conditions and software reference configurations,” JCTVC-J1100, Stockholm, SE, July 2012.