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| **Joint Collaborative Team on 3D Video Coding Extensions**  **of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11**  9th Meeting: Sapporo, JP, 3 – 9 July 2014 | Document: JCT3V-J0050 |

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| *Title:* | **Simplification of chroma IC** | | |
| *Status:* | Input Document | | |
| *Purpose:* | Proposal | | |
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**Abstract**

In the current 3D-HEVC, to compensate illumination change between inter-view texture pictures, IC which designed by based on linear model including scaling factor *a* close to 1 and an offset *b* applies both luma and chroma components. Basically, chroma is not an illumination component but a color component. Therefore, it is required to use IC process for chroma different from that for luma. In this contribution, simplification of chroma IC is proposed. The first option is to remove chroma IC completely. IC process only applies luma component. The other option is to use offset model instead of linear model. Experimental results show 0.1% loss for removing chroma IC and no impact for using offset model.

1. **Introduction**

A linear illumination compensation model is utilized to adapt luminance and chrominance of inter-view predicted blocks to the illumination of the current view. Illumination change of chroma component is different characteristics compared with that of luma component. Therefore, chroma IC might be designed by different model.

1. **Proposed method**

## Removal of chroma IC

In order to simplify the IC for chroma, this contribution proposes to disable IC parameter derivation process and applying IC in chroma coding. Note that there is no change for luma IC.

## Offset model for chroma IC

In order to simplify the IC for chroma, this contribution proposes offset model instead of linear model in chroma coding. Note that there is no change for luma IC.

1. **Experimental results**

The simulation is conducted on the common test condition [2] and HTM 11 reference software. Test 1 is a simulation for removal of chroma IC in Section 2.1. Test 2 is a simulation for offset model for chroma IC in Section 2.2.

Test 1 incurs approximately 0.1% coding loss for synthesized views under CTC.

**Table 1. 2.1 Test 1 vs. HTM 12.0**



Test 2 incurs no impact in terms of coding gains for synthesized views under CTC.

**Table 2. Test 2 vs. HTM 12.0**



1. **Conclusion**

This contribution proposes simplification for chroma IC. The first option is removal of chroma IC, the other option is to use offset model for chroma IC. The proposed methods incur minor loss for synthesized views under CTC.

# Patent rights declaration(s)

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1. **References**

[1] HTM-12.0, https://hevc.hhi.fraunhofer.de/svn/svn\_3DVCSoftware/tags/HTM-12.0.

[2] K. Müller, A. Vetro, “Common test conditions of 3DV core experiments,” Document of Joint Collaborative Team on 3D Video Coding Extension Development, JCT3V-G1100, Jan. 2014.