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| *Title:* | **Removal of depth\_dc\_flag syntax** | | |
| *Status:* | Input Document | | |
| *Purpose:* | Proposal | | |
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**Abstract**

In last meeting, *depth\_dc\_flag* syntax is no longer transmission for DMM mode [1]. Therefore, current *depth\_dc\_flag* syntax specifies that depth residual is present when SDC is only applied. In the contribution, removal of *depth\_dc\_flag* syntax is proposed. *depth\_dc\_flag* syntax can be removed by modifying calculation of DC offset. The experimental results are no impact under the common test conditions.

1. **Introduction**

As shown Table 1, *depth\_dc\_flag* syntax is only signaled when SDC is applied and prediction type of current CU is intra mode. It is not a general design. In addition, calculation process of DC offset is different depending on number of segmentation in a CU.

**Table 1. Signaling of depth\_dc\_flag and calculation of DC offset in anchor**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Intra | | Inter |
| Conventional intra | DMM |
| SDC on | ***depth\_dc\_flag***  *depth\_dc\_abs*  *depth\_dc\_sign\_flag*  (Zero level **disallows**) | ***depth\_dc\_flag***  *depth\_dc\_abs*  *depth\_dc\_sign\_flag*  (Zero level **allows**) | *depth\_dc\_abs*  *depth\_dc\_sign\_flag*  (Zero level **disallows**) |
| SDC off | - | *~~depth\_dc\_flag~~*  *depth\_dc\_abs*  *depth\_dc\_sign\_flag* (Zero level **allows**) | - |

1. **Proposed method**

This contribution proposes removal of *depth\_dc\_flag* syntax. *depth\_dc\_flag* syntax can be removed by modifying calculation of DC offset.

**Table 2. Signaling of depth\_dc\_flag and calculation of DC offset in proposed method**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Intra | | Inter |
| Conventional intra | DMM |
| SDC on | ***~~depth\_dc\_flag~~***  *depth\_dc\_abs*  *depth\_dc\_sign\_flag*  (Zero level **allows**) | ***~~depth\_dc\_flag~~***  *depth\_dc\_abs*  *depth\_dc\_sign\_flag*  (Zero level **allows**) | *depth\_dc\_abs*  *depth\_dc\_sign\_flag*  (Zero level **disallows**) |
| SDC off | - | *depth\_dc\_abs*  *depth\_dc\_sign\_flag* (Zero level **allows**) | - |

1. **Experimental results**

The simulation is conducted on the common test condition [2] and HTM-12.0 reference software [3]. As shown Table 3, the proposed method shows no impact for coding gains for dependant views as well as synthesized views under CTC.

**Table 3. Removal of depth\_dc\_flag syntax vs. HTM 12.0 CTC**



As shown Table 4, the proposed method shows no impact for coding gains for dependant views as well as synthesized views under AI.

**Table 4. Removal of depth\_dc\_flag syntax vs. HTM 12.0 AI**



1. **Conclusion**

Removal of *depth\_dc\_flag* syntax is proposed in this contribution. *depth\_dc\_flag* syntax can be removed by modifying calculation of DC offset. There is no impact of coding efficiency for the synthesized views under CTC and AI conditions.

# Patent rights declaration(s)

**LG Electronics may have current or pending patent rights relating to the technology described in this contribution and, conditioned on reciprocity, is prepared to grant licenses under reasonable and non-discriminatory terms as necessary for implementation of the resulting ITU-T Recommendation | ISO/IEC International Standard (per box 2 of the ITU-T/ITU-R/ISO/IEC patent statement and licensing declaration form).**

1. **References**

[1] X. Chen, X. Zheng, Y. Lin, and J. Zheng, “CE2 related: Remove “depth\_dc\_flag” signalling in DMM cases, ” Document of Joint Collaborative Team on 3D Video Coding Extension Development, JCT3V-I0120, July, 2014.

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

[3] 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.