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| *Title:* | **Simplification of an NBDV availability check** | | |
| *Status:* | Input Document | | |
| *Purpose:* | Proposal | | |
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**Abstract**

This document proposes a method of an NBDV availability check for 3D-HEVC. For the current 3D-HEVC, a disparity vector of a current block can be obtained from the neighbor blocks. If there are disparity vectors in the neighbor blocks, the firstly found disparity in the search order is assigned as the NBDV of the current block. In this case, the disparity availability flag is set to DISP\_AVAILABLE. If there is no picture with the default view index in the reference picture lists and the NBDV is not available, the disparity availability is set to DISP\_NONE. However, even if the NBDV is not available for the current block, the zero vector is set to a default DV when the default view index is available and it is used for a disparity refinement process. For example, in the current common test conditions, the default DV is available when the NBDV is not available and the disparity available flag is set to DISP\_DEFAULT because the default view is set to view 0. Since the default DV is used for VSP and DoNBDV like a normal disparity, it is proposed to consider the default DV as the available DV and to replace the status of the disparity availability DISP\_DEFAULT into DISP\_AVAILABLE so that it can be simplified and represented with a flag, for DISP\_AVAILABLE and DISP\_NONE.

# Introduction

In the 3D-HEVC, the NBDV is used to exploit the information from the reference view. The NBDV can be derived from the spatial neighbor blocks or temporally collocated blocks which are disparity-compensated, view synthesis predicted, or inter-view motion predicted. Even if there is no NBDV for the current block, it is available to exploit the default DV (zero DV) with the reference view. In this case, the default reference view is derived according to the decoding process and it is assigned as the reference view for the default DV. In the current 3D-HEVC, the NBDV availability is set to one of status among DISP\_AVAILABLE, DISP\_DEFAULT, and DISP\_NONE.

# Proposed method

It is proposed to simplify the number of disparity availability from three to two. Even if the NBDV is not available for the current block, the zero vector is set to default DV when the default view index is available and it is used for a disparity refinement process. For example, in the current common test conditions, the default DV is available when the NBDV is not available and the disparity availability flag is set to DISP\_DEFAULT since the default view is set to view 0. Since the default DV is used for VSP and DoNBDV, it is proposed to consider the default DV as the available DV and to replace the status of the disparity availability DISP\_DEFAULT into DISP\_AVAILABLE so that it can be simplified and represented with a flag, for DISP\_AVAILABLE and DISP\_NONE.

# Experimental result

The experimental result is described in Table 1. This test result shows that there is no impact if the NBDV availability is simplified. In the current 3D-HEVC, ARP is the only coding method to check if the NBDV is the default DV or not. Therefore, this result represents that ARP is allowed for the default DV.

Table The test result of the proposed method (HTM-12.0)



# Conclusion

In this document, the simplification of the NBDV availability is proposed. In the current 3D-HEVC, most of coding tools which exploit the NBDV regard default DV as the normal DV. Even though ARP checks whether the NBDV is the default DV or the normal DV, the experimental result shows that there is no impact on the coding efficiency. In conclusion, it is recommended to be adopted for the next version of 3D-HEVC.

# References

1. K. Müller, A. Vetro, “Common test conditions of 3DV Core Experiments” Joint Collaborative Team on 3D Video Coding Extension Development of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11, San Jose, USA, Jan. 2014.

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