

**Joint Video Experts Team (JVET)  
of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC  
29/WG 11**

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**Title:** AHG8: On wrap around motion compensation

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**Purpose:** Proposal

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Abstract

This contribution proposes the following changes on the wrap-around motion compensation:

2. The of `sps_ref_wraparound_offset` is restricted. `sps_ref_wraparound_offset` shall be  $\text{pic\_width\_in\_luma\_samples} / 2$ .

Problem statement

The horizontal wrap-around motion compensation (JVET-L0231) was adopted at the Macau meeting. The wrap-around motion compensation can reduce some visual artifact at the seam line in which the left boundary and the right one meet for 360 rendering. It has a marginal BD-rate saving (-0.22%), only when the padded equirectangular projection (PERP) is used. There is no report to provide a positive RD gain with normal video sequences. If the wrap-around motion compensation is allowed for normal video sequences without a restriction, it is asserted that undesired visual artifacts might appear at boundary by copying and using unconnected reverse-side pixel data for motion compensation.

Another problem is that there is no appropriate range of `sps_ref_wraparound_offset` in the current semantics. The allowed value is greater than 0 and smaller than a picture width (`pic_width_in_luma_samples`) in the current VVC WD. If the value of `sps_ref_wraparound_offset` is not greater than  $\text{pic\_width\_in\_luma\_samples} / 2 - 1$ , the same pixel values are circularly repeated for the wrap-around motion compensation. It is asserted that the circularly repeated motion compensation is not intended by the original proposal.

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LINKS

CARD

JVET-M0225

<http://vexpertise.stbit.ru/documents/JVET-M0225>

JVET Search

Byung-Yoon Choi, W. Feng, Shan Liu

AHG8: On wrap around motion compensation

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ABSTRACT

MEETING NOTES

SOURCE

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Document Information

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Comments

Associated Resources

ARCHIVE

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MEETING NOTES

external meeting notes

[https://www.itu.int/wftp3/av-arch/jvet-site/2019\\_01\\_M\\_Marrakech/JVET-M\\_Notes\\_dH.docx](https://www.itu.int/wftp3/av-arch/jvet-site/2019_01_M_Marrakech/JVET-M_Notes_dH.docx)

Joint Video Experts Team (JVET)

of ITU-T SG21 WP3/21 and ISO/IEC JTC 1/SC 29

13th Meeting: Marrakech, January 2019

Document: JVET-M0225

Title: Meeting Report of the 41st Meeting of the Joint Video Experts Team

Status: Report document from the chair of JVET

Purpose: Report

1 Summary

MEETING NOTES

[JVET-M0225](#) AHG8: On wrap around motion compensation [B. Choi, W. Feng, S. Liu (Tencent)] [late]

CITATION

B. Choi, W. Feng, S. Liu, "AHG8: On wrap around motion compensation", JVET-M0225, 13th Meeting: Marrakech, January 2019.

REFERENCES

1. [P. Hanhart, Y. He, Y. Ye, "CE13: PERP with horizontal geometry padding of reference pictures \(Test 3.3\)", JVET-L0231, 12th Meeting: Macao, October 2018.](#)

2. [R. Skupin, K. Suehring, Y. Sanchez, M. M. Hannuksela, K. Kammachi-Sreedhar, Y.-K. Wang, Hendry, S. Wenger, B. Choi, S. Deshpande, R. Sjöberg, "AHG17: On VVC HLS", JVET-M0101, 13th Meeting: Marrakech, January 2019.](#)

3. [J. Boyce, "AHG15: Update to interoperability point syntax", JVET-M0451, 13th Meeting: Marrakech, January 2019.](#)